

In This Issue—*Sell Heaters and Make Money*

# MOTOR AGE

Vol. L  
Number 16

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CHICAGO, OCTOBER 21, 1926

Thirty-five Cents a Copy  
Three Dollars a Year



The Essex "6" Coach

## HUDSON-ESSEX

Always a Money Making Line, Now Offers  
Greater Sales Appeal Than Ever

Hudson-Essex today is more than ever the opportunity line of the industry. It has long been the outstanding money-maker for dealers through fast sales, and little service requirement.

The new models are more beautiful in line, color and appointment. Each is more distinctive in appearance. Each is a triumph of body quality and comfort. Each is mechanically at the height of its value with chassis betterments overshadowing all forerunners.

Long experience and the building of more than 900,000 cars on the Super-Six principle have produced not only a finer car, but have resulted in economies of manufacture and distribution that give amazing price and value.

HUDSON MOTOR CAR COMPANY. DETROIT

# BONNEY\*CV CHROME VANADIUM WRENCHES HAVE ESTABLISHED NEW STANDARDS OF WRENCH QUALITY

**S**TRENGTH far in excess of ordinary wrenches — "Pear" shaped jaws giving maximum clearance in close quarters—Thinner—Longer—Better Balance — Lighter — Extreme Accuracy in the milled openings—Size Markings easy to read—and the Distinctive Bonney Finish: nickel plated with the heads polished.

*Designed to meet the needs of  
Wrench Users*

The **Tappet Wrenches** are extremely thin and light and the heads are set so that two wrenches may be used in one hand like scissors; and they are very long so that you can adjust tappets on a hot motor without getting burned. The strength of the Chrome Vanadium makes a set of these wrenches outlast many sets of ordinary wrenches.

The **Water Pump Packing Nut Wrench** (also of Chrome Vanadium) is thin with narrow jaws; very light, but tremendously strong. The head is set at just the right angle to reach the pump gland nut which is so inaccessible on most cars; and the handle is short enough to clear obstructions and make a fuller turn.

The **Engineers Wrenches** are very thin and very light—the "pear" shaped jaws enable them to get into close corners; and because they are also Bonney \*CV Chrome Vanadium they are guaranteed "to strip the thread of any USS or SAE nut, or break the bolt before the jaws will spread."

BONNEY \*CV CHROME VANADIUM WRENCHES ARE USED EXTENSIVELY BY AUTOMOBILE, TRUCK AND BUS MANUFACTURERS FOR FACTORY ASSEMBLY AND ARE RECOMMENDED BY MOST OF THE MANUFACTURERS FOR SERVICE WORK.

*\*C. V. is a Bonney  
trademark  
registered in the  
U. S. Patent Office*

*Chrome Vanadium  
registered  
August 11th, 1925*



(PATENTS PENDING)

You can secure from your jobber. Write for detailed information.

**Bonney Forge & Tool Works**  
Allentown, Pa.

Makers of Special Service Wrenches of Chrome Vanadium, Carbon Steel Drop Forged Wrenches, Stillson Wrenches, Vises and Drop Forgings and the Bonney Rim Tool.

**BONNEY**  
Chrome-**CV**-Vanadium  
**WRENCHES**

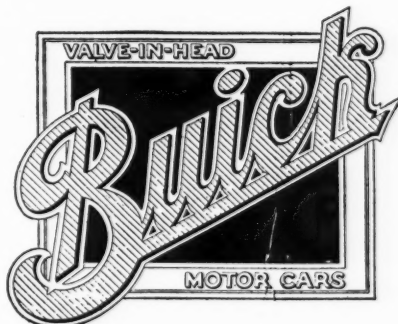


# *The Greatest* **BUICK** *Ever Built* **HAS**

—FIRST PLACE at the National Automobile Shows for 1927. This is the *ninth consecutive year* Buick has won this honor, which goes annually to the member of the National Automobile Chamber of Commerce doing the year's largest volume of business. Buick value has sold a host of Buicks.

BUICK MOTOR COMPANY, FLINT, MICHIGAN  
*Division of General Motors Corporation*

*Those who desire the Buick  
Franchise should have their  
names on file* / / / / /



WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM

# ECLIPSE

## BENDIX DRIVE



### Service Without Delay

THE SERVICE ASSORTMENT of genuine springs for the Eclipse Bendix Drive enables you to make spring replacements on practically every passenger car, truck or taxicab, without delay. Each spring is identified by its part number, and by the types of drives on which it can be used. Order from your jobber.

### Use These Service Bulletins

Service Bulletins containing authentic and easily understood information on the proper servicing of the Eclipse Bendix Drive are issued regularly for the use of repairmen. We will be glad to send them to you without charge. Just fill out the coupon below and mail today.

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**Eclipse Machine Company**

**Elmira, New York**

Department 7

**MAIL THIS COUPON**

Please send at once your useful Service Bulletins on the Eclipse Bendix Drive; also name of nearest distributor of Genuine Parts for the Eclipse Bendix Drive.

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# MOTOR AGE

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VOL. L

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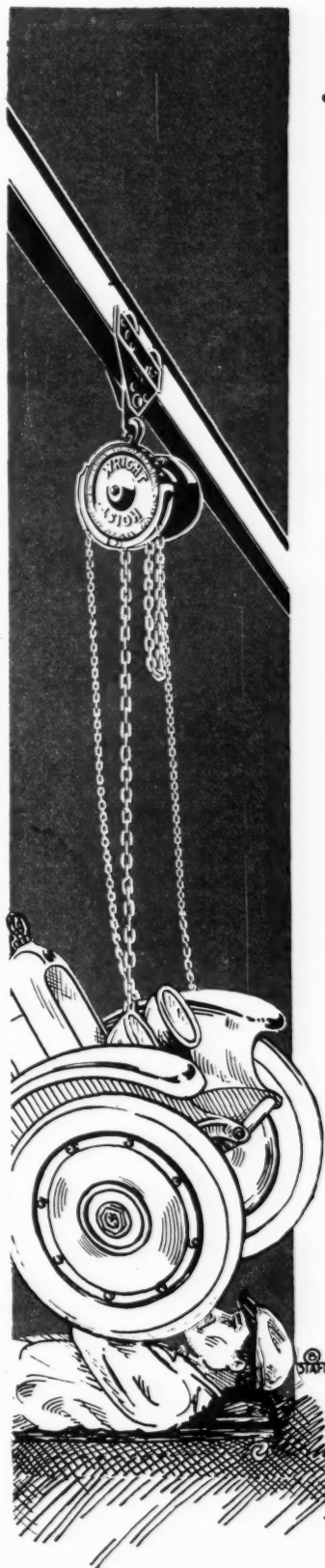
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Entered as Second Class Matter, Sept. 19, 1899, at the Post Office at Chicago, Ill., under Act of March 3, 1879



This high speed hoisting and conveying outfit is the eventual choice of every money making repair shop. Why? Because the easy acting, quick lifting and safety first features for which it is nationally famous, are Wright features exclusively.

Let us tell you of all these features—21 in all.

# WRIGHT

MANUFACTURING COMPANY  
LISBON, OHIO



# "We have made a profit every month since we took on the line."

So writes

**L. F. Mullin**

President

**The L. F. Mullin Company**  
DETROIT

**I**N DETROIT, where several of America's finest motor cars are built, a "foreign-made" automobile must have something on the ball in order to reach a satisfactory volume of business during its first half-year there.

Mr. Mullin not only reports a fine service record with the New Safety Stutz, but he also states that his company has made a profit every month since taking on the line.

Representative automobile merchants that like a profit every month—real, net, cash-in-bank profit—are invited to write for the Stutz Dealers' Proposition.

**STUTZ MOTOR CAR CO.**  
of AMERICA, Inc., Indianapolis

Stutz Motor Car Co. of America, Inc.,  
Indianapolis, Indiana.

Gentlemen:

After distributing Stutz cars for a period of six months it occurred to us that you might be interested in knowing what our experiences and re-actions have been.

First, and most essential, we have made a profit every month since we took on the line.

We have had no complaints from owners on the comparatively few service charges which it has been necessary for us to make.

We hardly know which of the many Stutz features are most attractive to the buying public but think the opportunity to go into them has been brought about by the strong eye appeal of the car in its entirety.

After fourteen years of distributing motor vehicles we were naturally critical in making a contract to sell a so-called "foreign-made" car, but have had no reason since for regret as the car has far exceeded our expectations.

We thoroughly appreciate the courteous treatment from all departments in your organization and you may be assured of our co-operation in the future.

Very truly yours

The L. F. MULLIN COMPANY

*L. F. Mullin*

President



*New*  
**SAFETY STUTZ**

# *Sales Assistance*

VS.

## Sales Resistance

THE new Studebaker One-Profit Custom Cars put sales-assistance in the car and remove sales-resistance from the prospect. They are designed, built and priced to furnish their own selling arguments — and they come closer to selling on sight than any other car in the world at the price.

Already sedan sales have doubled—and Studebaker dealers are doubling their profits from the Studebaker Franchise.

Find out if your territory's open!

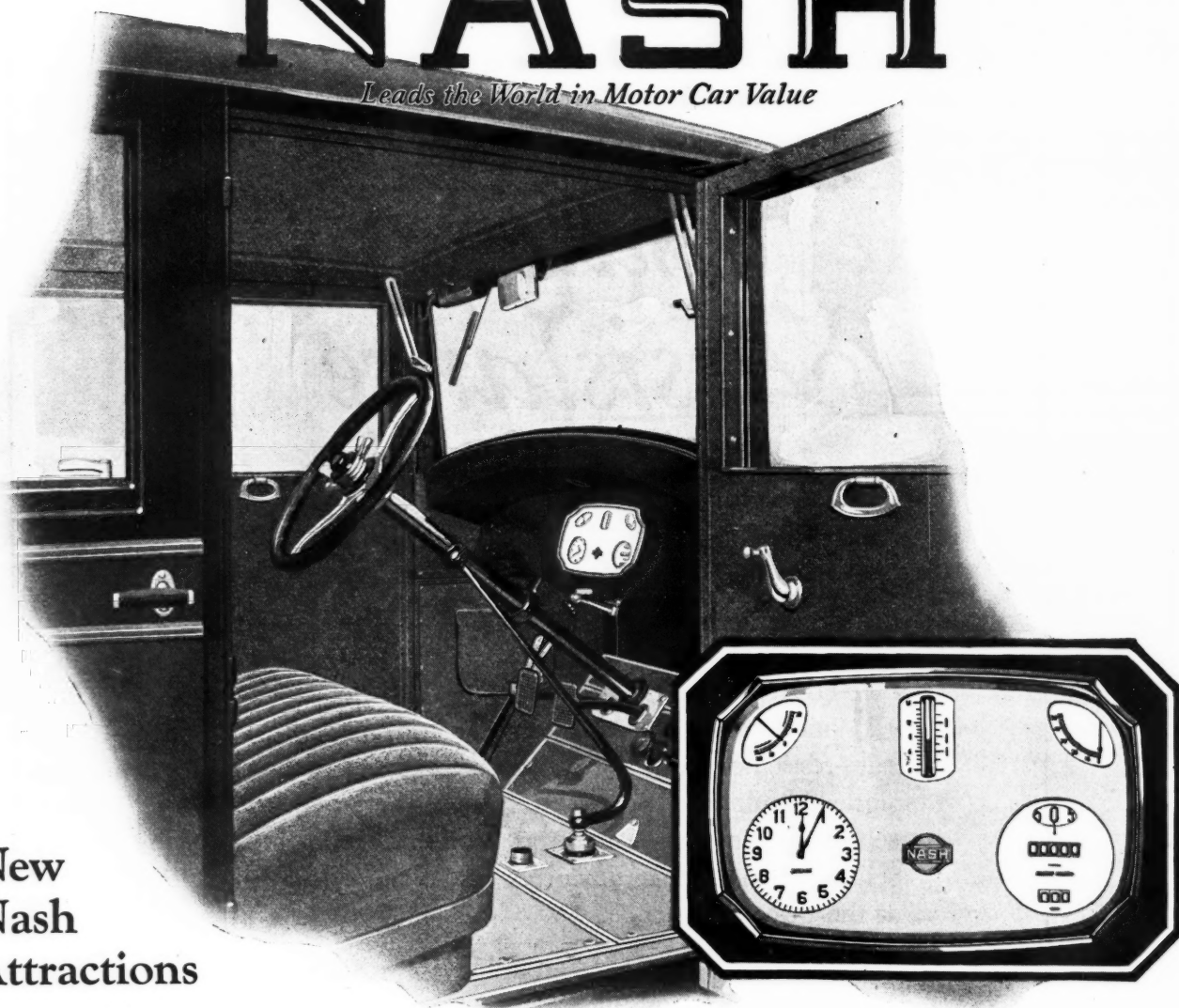
*Address Department 51*

THE STUDEBAKER CORPORATION OF AMERICA  
SOUTH BEND, INDIANA

S T U D E B A K E R

# NASH

*Leads the World in Motor Car Value*



## New Nash Attractions

7-bearing crankshaft motor  
—world's smoothest type  
—powers all new Nash models.

New-type crankcase  
"breather" which prevents crankcase dilution.

Rubber insulated motor supports—(standard Nash practice for some time).

New-design motor muffler deepening operative quietness.

Motor heat control by new thermostatic water regulator.

Oil screen "agitator" preventing oil coagulation in coldest weather.

And many other new improvements.

## A NEW Instrument Board and Greater Front Compartment Convenience

One of the many outstanding advantages offered by the new Nash models is found in the arrangement and appointments of the front compartment.

There is an attractive new instrument-board with all instruments compactly assembled in a single panel under glass, indirectly lighted.

Included in the grouping is an electric clock, a hydrostatic gas gauge, ammeter, oil gauge, and speedometer.

Further forethought for the driver is shown in the way Nash has located the lever control of the new double-beam headlights on the steering wheel at your finger tips.

You'll observe, too, that Nash places

the parking brake at the left toward the sidewall, thus giving the center of the front compartment greater leg space and foot room as well as adding to the sightliness of this space.

This parking brake (ordinarily called an emergency brake) is never needed for emergency use in a Nash because all Nash cars are standard equipped at no extra cost with the most efficient and powerful 4-wheel brakes known to the industry.

These new Nash models re-emphasize the skill with which Nash has combined convenience with beauty, and made the greater comfort of the Nash driving compartment a compelling sales-attraction.



**M**ANY things are contributing to the longer life of motor cars and one of these is the New Departure Ball Bearing.

Four features, not shared with any other bearing type, contribute to the long life of this bearing, and hence the added life of the parts it supports:

The superior ball bearing principle with the reduction of friction to the very minimum under all conditions.

Free, true rolling motion under load without mechanical aligning devices.

New Departure precision manufacture.

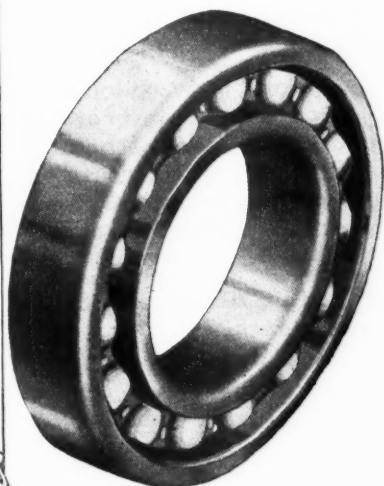
New Departure high carbon, high chrome, electric furnace alloy steel.

THE NEW DEPARTURE MANUFACTURING COMPANY

Detroit

BRISTOL, CONNECTICUT

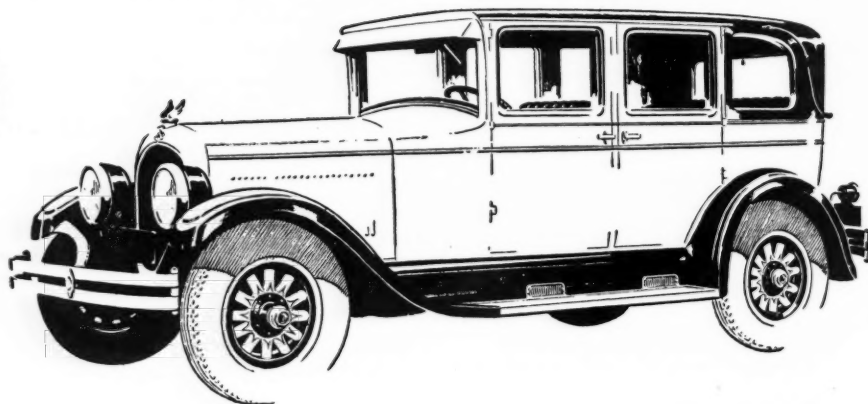
Chicago



384

**New Departure**  
**Quality**  
**Ball Bearings**

# Announcing The NEW FINER CHRYSLER "70"



## Further Widening the Gap Between Chrysler And all Other Motor Car Franchises

The announcement of the new, finer Chrysler "70" only serves to emphasize the greater profit possibilities offered to dealers by Chrysler.

In its new appearance, new smartness, new comfort, new richness of upholstery and fitment, it presents a vogue in motor design that will be even a more decided influence on motor car design and practice for years to come, than was the first Chrysler "70".

### New Lower Prices as Significant as Its New Beauty

	New Prices	Old Prices	Savings
Roadster - - -	\$1495	\$1525	\$ 30
Brougham - - -	1525	1745	220
Royal Coupe - -	1545	1695	150
Royal Sedan - -	1595	1795	200
Crown Sedan - -	1795	1895	100
Phaeton, \$1395	Sport Phaeton, \$1495		

All Prices .o.b. Detroit, subject to current Federal excise tax

as engineering design and methods of manufacture.

Today, others in the industry are still celebrating as advanced improvements features which Chrysler "70" initiated three years ago.

But in all this time no car has as yet been

able even to approach the first Chrysler standards.

And now the new finer Chrysler "70" not only strikes out into an even more pronounced Chrysler leadership, but at its new lower prices it even more definitely upsets all conceptions of motor car value.

The introduction of this new Chrysler "70" furnishes the most graphic instance of the way Chrysler keeps its dealers far ahead of competition by supplying them with a group of products built under its unique plan of Standardized Quality—the "50", finest of fours, the lighter six, "60", the Imperial "80", as fine as money can build, as well as the new finer "70"—to supply the four great quality car markets.

Little wonder that shrewd, forward-looking motor car dealers the country over are eagerly turning to Chrysler, many of them severing connections of many years' standing to take on a franchise which offers the greatest sales scope in the industry.

Your inquiry for further details will be held in strictest confidence.

CHRYSLER SALES CORPORATION, DETROIT, MICHIGAN  
CHRYSLER CORPORATION OF CANADA, LIMITED, WINDSOR, ONTARIO

CHRYSLER MODEL NUMBERS MEAN MILES PER HOUR

# Paris Automobile Show Reflects American Influence

*Twenty-Two Makes from United States on Exhibition—European Models Coming to Six-Cylinder Engines and Four-Wheel Brakes as Standard*

Special Cable  
By W. F. BRADLEY

Paris Correspondent of MOTOR AGE

**P**ARIS, Oct. 14.—With twenty-two car manufacturers America leads the list of foreign exhibitors at the twentieth Paris Automobile Salon which opened at the Grand Palais in the Champs Elysees today. Italy follows with ten makes, Belgium with six, England with three, and Austria and Spain with one each. A greater number of the leaders of the American industry attended the opening of the show this year than ever before.

A review of the exhibits indicates that European engineers have been influenced by American practice or by the demands made by European users as a result of having become familiar with American cars. An increased number of six-cylinder models is one of the features of the show. Among the new models exhibited are designs by Voisin, Panhard, Minerva (all with Knight-type engines), Renault, Berliet, Donnet-Zedel, Nagant, Ballot, Alfa-Romeo, Steyr and Irat. Of the foregoing the Renault, Berliet, Minerva, Donnet and Nagant are laid out specially to meet American competition.

There is no new development in eight-cylinder engines, which are built only by Panhard, Isotta-Fraschini and Bugatti. Cars with supercharging engines are built only by small makers in small sporting types. Experiments made with turbulence type heads of the Ricardo and similar designs have given satisfactory results, and this, combined with the lower production cost of the L-head type, has been an important factor favoring the adoption of that type in a number of large production models.

Among the distinctive tendencies in design are the greater use of sheet metal pressings in place of aluminum castings and the adoption of air cleaners and oil purifiers. Central chassis lubrication systems, generally of American origin, are beginning to make their appearance. Increased use is made of single-unit electrical equipments, that is, combined generators and starters, and interest in battery ignition is reviving, for both cheap and expensive models.

Voisin has a new Knight six with dry-sump lubrication. There is little development in clutches, transmissions and rear axles in the field of big-production jobs. Constantinesco shows a small two-cylinder, two-stroke car with his torque converter, while Sensaud de Lavaud exhibits his automatic transmission and has six

demonstrating cars running, the largest of these being fitted with a Voisin 182 cu. in. sleeve valve engine. The Cotel planetary, magnetic control transmission is demonstrated on various cars, including Fords.

Four-wheel brakes are fitted on all of the European cars exhibited, and servo mechanisms are gaining favor, the most popular, apparently, being the Dewandre vacuum type.

Duplicate steering as a preventive against shimmy is used by Farman and Cottin-Desgouttes. Solution of the suspension problem is attempted by Farman with light transverse springs in front and rear, supplemented by heavier longitudinal springs and positive linkage of both axles to the frame; and by Cottin-Desgouttes with quadruple rear and single front transverse springs.

Citroen announces a new Budd-built standard sedan at 28,000 and a de luxe type at 30,000 francs, while the standard phaeton lists at 23,500 and the de luxe phaeton at 25,000 francs. The Renault 194 cu. in. six with fabric leather sedan lists at 47,000, the Berliet 110 cu. in. six Weymann sedan at 49,500, the Donnet-Zedel 156 cu. in. six sedan at 48,000, the Overland Whippet sedan at 75,000 and the Erskine six phaeton at 77,000, while the Minerva (Knight) 122 cu. in. six is quoted at 37,500 Belgian francs for the chassis only.

The show is practically divided between fabric leather and all metal bodies, the latter being built exclusively by Citroen, whose Budd plant has recently been enlarged to a capacity of 1,000 bodies a day. Renault is almost entirely on fabric leather construction. A large gain is shown by the Weymann type, which is now made by 34 European manufacturers. Some high-class fabric leather bodies are finished in pyroxylin, giving varied color effects. About 80 per cent of all cars shown are pyroxylin-finished, several French lacquers of this type having been placed on the market recently.

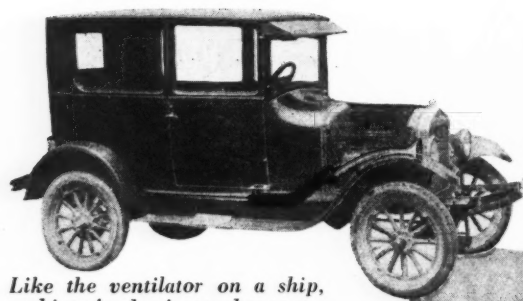
Closed cars have gained considerably. The general practice is to shorten the body to provide for carrying a trunk on a permanent platform, only the spare wheel being overhung. Michelin introduced a straightside tire, but the majority of cars are still fitted with the clincher type. Drop center rims are not yet widely used. Two new tire sizes were introduced, viz., 720 by 120 and 850 by 150 mm.



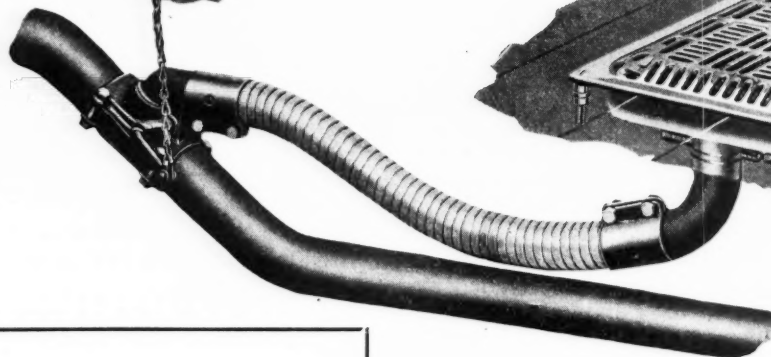
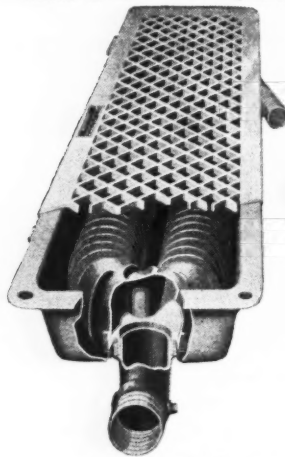
# Sell Heaters Money

*The Up and Coming Merchandiser Is Looking After the Comfort of His Customers and Cashing in on a Seasonal Demand*

By A. H. PACKER

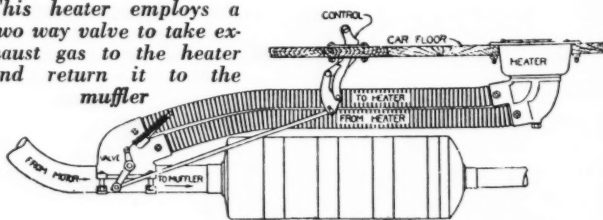


Like the ventilator on a ship, taking fresh air to the crew Radiating fins in this heater make it extremely efficient

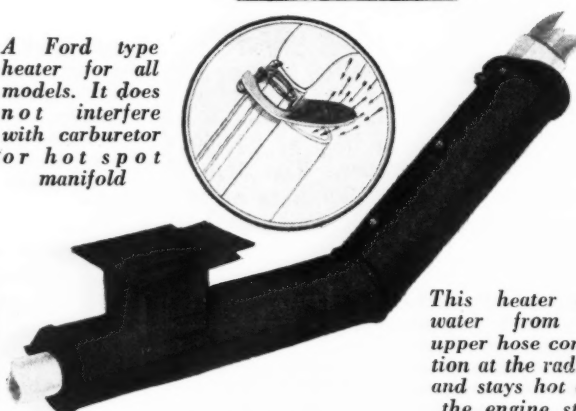
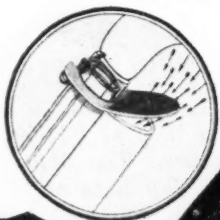


A five pipe copper coil in this heater makes it operate practically as soon as the engine starts

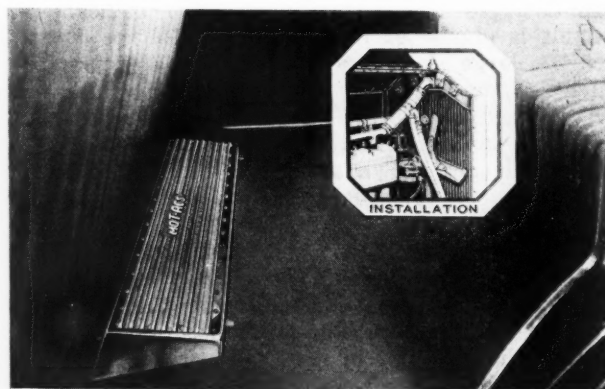
This heater employs a two way valve to take exhaust gas to the heater and return it to the muffler



A Ford type heater for all models. It does not interfere with carburetor or hot spot manifold



This heater uses water from the upper hose connection at the radiator and stays hot after the engine stops



THE bridge game on the train that morning had cost Suthers exactly 51 cents. "Another item not included" he said half to himself as he thought of the gaudily covered red budget that he had tossed away in disgust but a short time before.

"Fifty-one cents; add to that 16 cents train fare, or a total of 67 cents or \$1.34 a day. Three hundred days a year makes \$400 a year." And the office manager of the Bondwell Corporation allowed his figures to extend to ten, twenty and thirty year periods until his commutation expenses assumed alarming proportions.

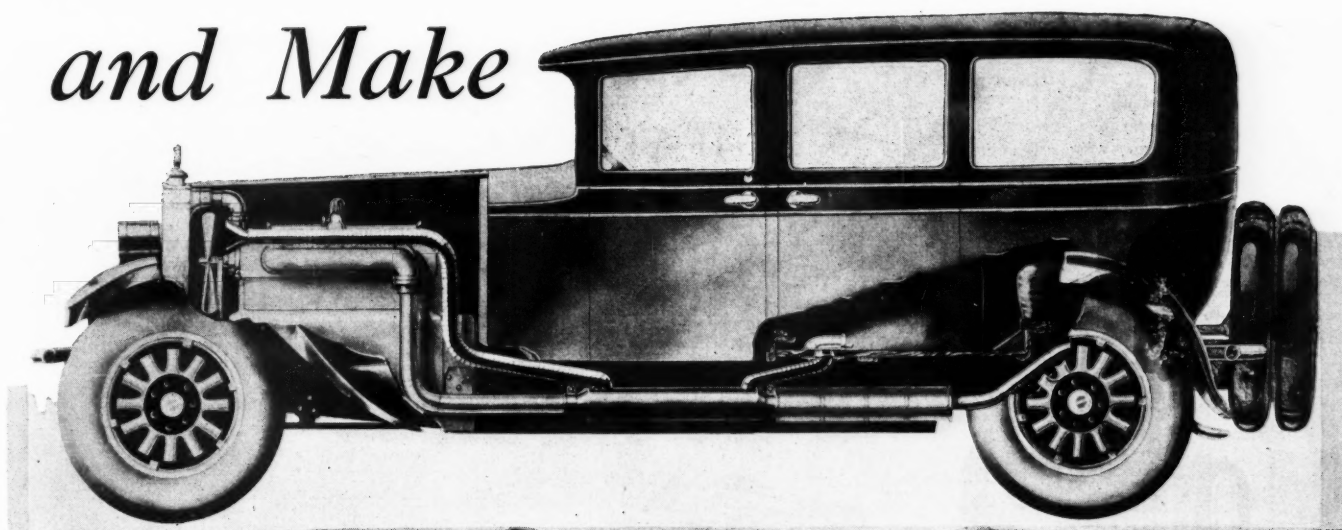
The next day the stocky form of the Bondwell office manager was not seen at the suburban station. Perhaps he would show up at the last minute. The 8:01 pulled in, gorged itself with waiting suburbanites and pulled out again, but Suthers failed to appear. Suthers had joined the ranks of those who prefer individual transportation. The new car with the winter enclosure was his suburban train now and Suthers was enjoying every minute of the drive.

At least, he enjoyed every minute of it for the first mile but there were nine more to go. It was at this point that Suthers, unconscious of what he was doing, slid one hand under him and drove with the other. The problems of traffic interfered somewhat with the accounting puzzle he was working as he rode, so it was another mile or two before he realized that his hands were cold and that in spite of the ease with which the car could be driven, it was hardly feasible to drive, sitting on both hands.

Having solved the problem of what was wrong with his hands, Suthers drove on, alternating with first the right hand and then the left on the steering wheel. At the eight mile point he realized that his feet were cold and by the time he reached the office he was ready to admit that he was cold all over.

"Not so good, after all," he soliloquized, as he thought of the gang in the smoker, warm and comfortable, hav-

# and Make



*A specially constructed heating chamber is a feature of this device. In this chamber the exhaust gases entirely surround the fresh air passage*

ing a friendly though sometimes expensive game on the way down town.

As Suthers glanced over his mail he noticed a letter addressed to him personally. Most of his personal mail came to the house so this letter at first startled him. It was from the West Morland Garage, and the tone was most friendly.

"A short time ago we sold you a car," the letter began. "They are perfectly right so far," thought Suthers and continued to read.

"In all our sales from a spark plug to a Limousine we endeavour to give satisfaction. This effort on our part is sincere, but we are human and sometimes make mistakes. If there is any thing we have omitted that would contribute to the fullest enjoyment of your car will you tell us what it is. There is no other way we have of knowing whether we have lived up to our standard of honest, satisfying service.

"If any detail is lacking we can supply it. We carry a full line of bumpers, windshield wipers, spot lights, heaters—" And Suthers read no further. That was it. Why had he not thought of it before?

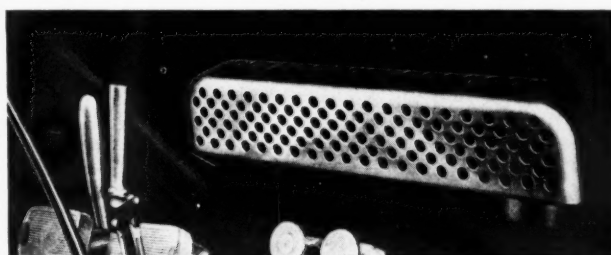
"Heaters—HEATERS—HEATERS" The word seemed to float before him and drift off into space as he watched. Of course, heaters. No more sitting on one hand while driving. No more tingling toes or cold shivers. The winter enclosure which kept out the rain and wind would hold in the heat. Perhaps even—but Suthers was skeptical—perhaps it might even make it possible to avoid the purchase of a fur coat for Peggy. But Suthers discounted that vain hope. He had figured like that before. The heater, however, would be added to the car. He would leave the car at the West Morland garage that very evening.

\* \* \*

The difference between comfort and misery, between cold and heat, between joy and gloom. What is it? Perhaps the difference in the methods employed in operating the dealer's accessory department. Ask yourself, am I really taking advantage of the opportunities that are before me with the coming of the winter season? Then consider what has happened to the automotive industry in the last fifteen years.

Take away the closed car and the winter enclosure. Take away heaters. Take off the top and even the windshield. Picture, if you can, the faint chance of making any money with an automobile of that sort.

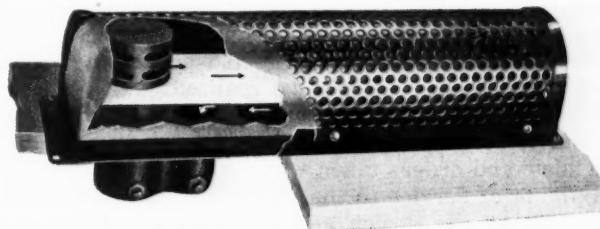
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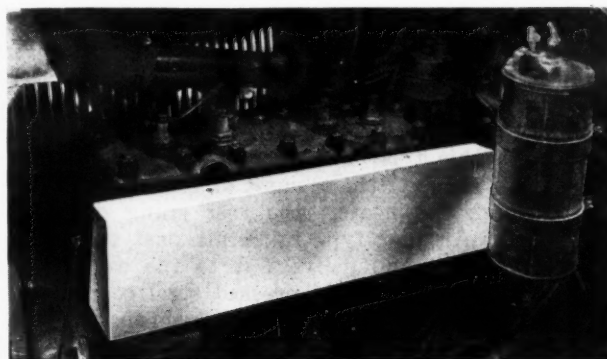
*A neat installation of a rail type heater*



*This heater is easily cleaned from above by turning a screw which drops the doors on the under side and then closes them again*

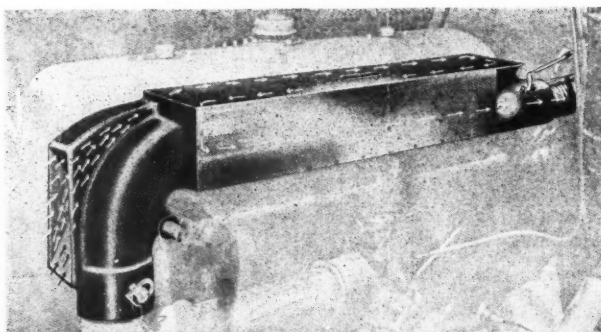


*This rail type heater carries the exhaust gas under a metal shell, protected by a perforated outer shell*



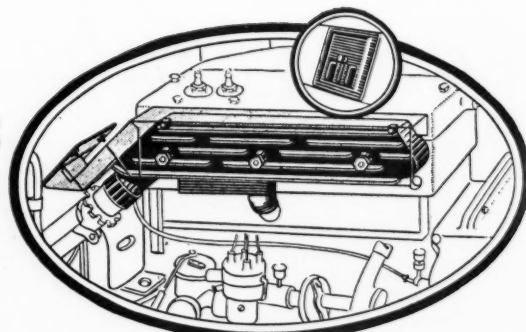
*This heater is low in price and is made for 17 makes of cars and for new models as they come out*





*This heater is made for Nash Advanced and Special and Franklin Series 10 and 11*

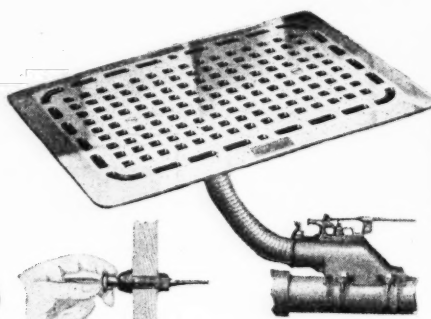
## SELL HEATERS *Make* MONEY



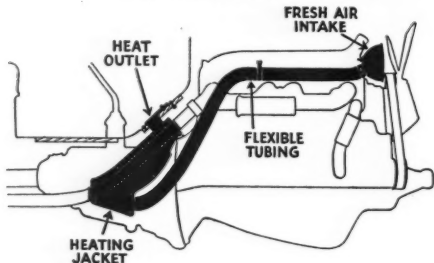
*This heater is cast iron and takes the place of the regular manifold*



*A rail type heater with convenient chain control for the valve*

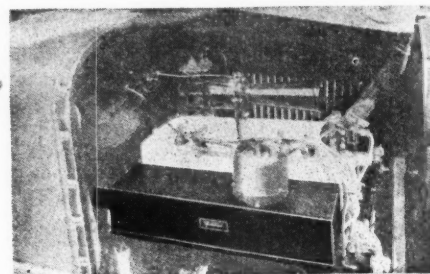


*Above: A dash control is used with this heater so that temperature of the car can be accurately controlled*

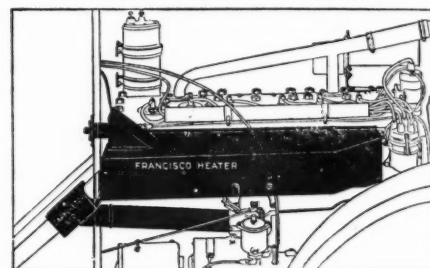


*Left: A Dodge Brothers car equipped with heater which gets air through the radiator*

*Right: This heater is made in two parts. One supplies heat to the carburetor, the other, heat to the car interior*



*A heater installation which does not interfere with the air cleaner*



*(Continued from preceding page)*

Then look at the other picture with a modern car, easy starting, smooth running, warm and comfortable as the well heated residence in which the car owner lives. That is the thing that is making the automotive business an all year instead of a summer business, but it needs the consistent efforts of all who are in it if the greatest advantages are to be realized.

Heaters may be sold intelligently, aggressively, persistently, or they may be put in the show case or on the shelf and orders taken when customers insist. The maximum of service to the customer and the maximum of profit to the dealer and the industry will accrue, however, when a good product is handled and sold wherever opportunity permits.

### *Types of Heaters on Market*

Three general types of heaters are available at prices ranging from \$2 or \$3 up to \$25 or more. One type utilizes exhaust gas carried into the heater and then returned to the exhaust line where it passes on to the muffler. In this type a valve of some sort is usually employed to regulate the amount of exhaust gas which flows through the heater, the rest going directly to the muffler. Another type takes air past the exhaust pipe or manifold and delivers it to the car interior, these ranging from simple pressed steel covers which fit over the manifold and deliver heat through an opening in dash or floor, to more elaborate construction in which a special heating device may be employed and with air inlet and funnel extending to the front of the car to catch air as it comes in through the radiator.

Still another type operates with hot water from the cooling system, a connection being made adjacent to the upper radiator hose connection and a certain percentage of the flow being diverted through the passages of the heater which is installed in the car interior.

In deciding on any particular type the dealer should consider the various features and the class of trade with which he has to deal, also the installation features, as the heaters should be sold installed and the prices quoted accordingly. In this way another job is brought to the shop as well as an extra sale.

### *Push Sales Now*

The time to sell heaters is now, just at the beginning of cool weather. Many owners can easily be impressed with the advantage of making the car comfortable for all kinds of weather. It will be easier to sell heaters now than when the winter is half over, for then the owner is likely to figure on holding out until spring.

Some closed cars come from the factory equipped with heaters. After the buyer has driven the new car awhile he may or he may not be satisfied with that particular heater. If he is not satisfied the dealer probably will be able to install one of another type at reasonable cost.

Dealers selling new cars should stock suitable heaters for the cars they handle and should see that a real effort is made to have a heater on every new car going out.

The dealer or garage that is pushing heater business now is getting ready to show a nice profit at the end of the year.





Salesroom of Huntingburg Motor Co., whose trade-in record so far this year has been only 5.6 per cent of sales

# Working *the* Two Car Idea

*Indiana Ford Dealer Induces Many New Car Buyers to Keep the Old One for Hack-about or Trucking Purposes, Thus Avoiding Trade-Ins and Profiting from Equipment Sales*

By H. L. CECIL

**"E**DUCATE the farmer and the used car problem is solved."

With this slogan the Huntingburg Motor Co. of Huntingburg, Ind., has had a trade-in record of only 5.6 per cent during the first six months of 1926.

Every effort is being made by the company to educate the farmers of the surrounding territory to the fact that cars discarded for passenger purposes have an invaluable part of farm life remaining to them.

Salesmen for the Huntingburg company are educating farmers to the thought that, converted into a truck, the old car can be used for many years to come about the farm or that, with a few attachments it becomes a valuable part of the farm power machinery.

A series of direct-by-mail advertising letters, to be sent out in August and September by the company, carry this message. One reads:

"Your old machine is worth keeping. Use it for your farm tasks. Get a 'dress-up' machine just as you keep a good suit of clothes for special occasions."

Another letter says:

"Don't trade in the old car. It will come in handy. You can buy a saw attachment for it and cut your winter wood supply. You can convert it into a truck to haul your fertilizer, your corn, your wheat and your market produce at slight cost. See us for figures."

To back up this policy and campaign the Huntingburg Motor Company is handling farm power machinery appliances suitable for use on old cars.

One appliance, a saw attachment, is attracting much

attention of farmers. Small truck beds also are bringing many sales.

Huntingburg is a town of 4,500 population, yet the Huntingburg Motor Company's estimate for 1926 is 300 Ford cars. In 1925 the company sold 250 machines and J. R. Cary, who became secretary and treasurer and general manager in May of this year, expects to exceed the estimate of 300 cars this year.

"Stick to your prospect until he buys or dies," is the slogan on the sales chart board for the four salesmen of the company. Each salesman is instructed to avoid accepting trade-ins as much as possible and to seek to educate farmers especially to the value of maintaining their old vehicles as general farm 'hackabouts'."

As a result of the campaign, during May and June the company sold appliances designed to convert Ford cars into trucks and farm power machines to the retail value of \$2,000. The sales also marked the success of the firm in avoiding the acceptance of 19 old cars in trade, according to the sales chart.

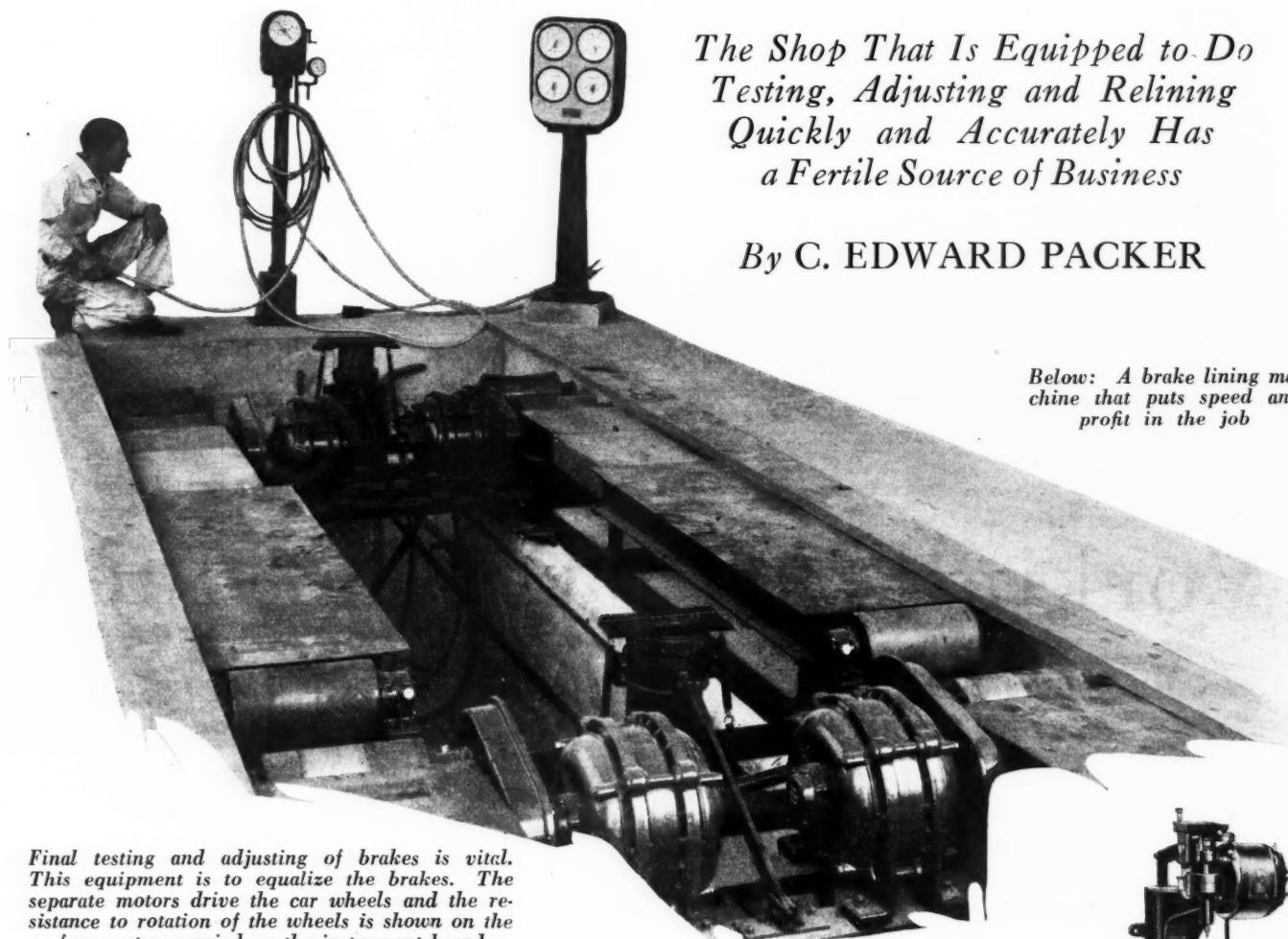
A complete service station for Ford owners is the aim of the company at all times. Firestone tires are sold, batteries are carried in stock, with a battery service station backing up the sales, and accessories are provided for Fords. The company maintains a wrecker service and a complete parts department.

S. R. Ewing of Owensboro, Ky., is president of the company, with S. B. Berry of Owensboro as vice-president.

# Good Brake Service Is

*The Shop That Is Equipped to Do Testing, Adjusting and Relining Quickly and Accurately Has a Fertile Source of Business*

By C. EDWARD PACKER



*Below: A brake lining machine that puts speed and profit in the job*

*Final testing and adjusting of brakes is vital. This equipment is to equalize the brakes. The separate motors drive the car wheels and the resistance to rotation of the wheels is shown on the four meters carried on the instrument board*

## EQUIPPED FOR PROFIT

### Brake Service

No one should attempt to handle brake service without proper equipment. Lack of equipment swells costs and shrinks profits. Proper facilities for hoisting the car, removing the wheels, and relining the brakes is absolutely necessary where profit is hoped for.

The following pieces of special equipment, in addition to wrenches, pliers and the like, should be in every brake service station:

Machine for removing old rivets, drilling and countersinking the lining and setting up the new rivets. These come in motor driven and foot operated types and cost between \$60 and \$120.

Cutting the lining can be done with a hacksaw but a regular brake lining cutter does the work better and faster. These can be had at prices ranging from \$15 to \$30.

Quick acting or dolly jacks sufficient to hoist the entire car at one time should be on hand. Such items are to be had at prices from \$9 to \$36 each.

Wheel pullers, costing from \$1.50 to \$12, are needed for quickly and safely removing wheels.

Lathes suitable for truing up brake drums range from \$525. In the shop where a volume of brake service is handled a special dynamometer brake tester should also prove profitable.

on the braking system is not severe.

But the emergency stop that is required in order to protect life and property is another thing. Here there can be no compromise with braking efficiency.

Driving in traffic—the car ahead stops with little or no warning. If the brakes of the car behind are O. K. all is well—otherwise a gas tank, radiator, possibly some lights and fenders are ruined. Quite a price to pay for neglect. But it might be worse.

Touring in the country—a cross road—two cars a “tie” for the crossing. Good brakes can save the day.

Night and an unguarded railroad crossing. Possibly a curve, some rain, blurred vision and a slippery road. Here again, effective brakes, well equalized, are essential if an accident is to be avoided.

### Authorities Boost the Brake Business

Authorities are striving incessantly to devise ways and means of making the automobile more safe for pedestrians and passengers alike. This is a big and important work and one in which the car dealer and garageman should take an active interest.



**B**ROADLY speaking there is but one reason for effective brakes and that is *safety*. Surely, the matter of convenience is to be considered, but that generally is covered by being able to make an anticipated stop. Being anticipated, the car has been slowed down and as a consequence the strain



# Profitable

*SIXTH Article in the "Equipped for Profit" Series.*

There is hardly a car made today that is deficient in speed. Speed is built into them. Their speed is advertised and demonstrated. What is really needed, however, in this age of high speed and congestion is *good brakes*. Ability to accelerate rapidly is pleasant—ability to decelerate suddenly is imperative. It is the duty of those engaged in the automotive business to take all steps possible to increase the safety and economy of the automobile.

Many cities and towns have put on brake testing campaigns in connection with a special "Safety Week." Local fraternal, business, and social organizations are quick to back any movement that will make their streets more safe. Naturally the live automotive merchants of the town should be the leaders in such an activity.

## *What Has Been Done Can Be Done*

What others have done along the lines of improving the stopping ability of cars can be done by others who will put the same amount of thought and effort into the work. Such activity very greatly increases the business of the shops handling brake service as well as improving driving conditions.

Take one example of what has been done. In Grand Rapids, Mich., attention was first given to brake testing three years ago. The first tests showed *one third of the cars tested to have faulty brakes!*

But these tests brought home to the motorists the great danger of such a condition, business flowed into the service stations, and at the second test the number of faulty cars was reduced to 25 per cent.

This year tests showed that 98.4 of the cars could stop in the required distance. Surely the peace of mind that accompanies such a worthwhile undertaking makes the time and trouble a good investment. *Maintaining these brakes means extra profits.*

True, public opinion is a great force for creating brake service business. But unless there is both the knowledge of *how* the work should be done and then the equipment to do the work right much of the development work is wasted. If the job is bungled

in any way the car owner gets disgusted and will risk using his car with poor brakes—business is lost—and potential profits are gone.

But brake service is not a deep or mysterious matter.

Primarily the brake of today consists of a composition lin-

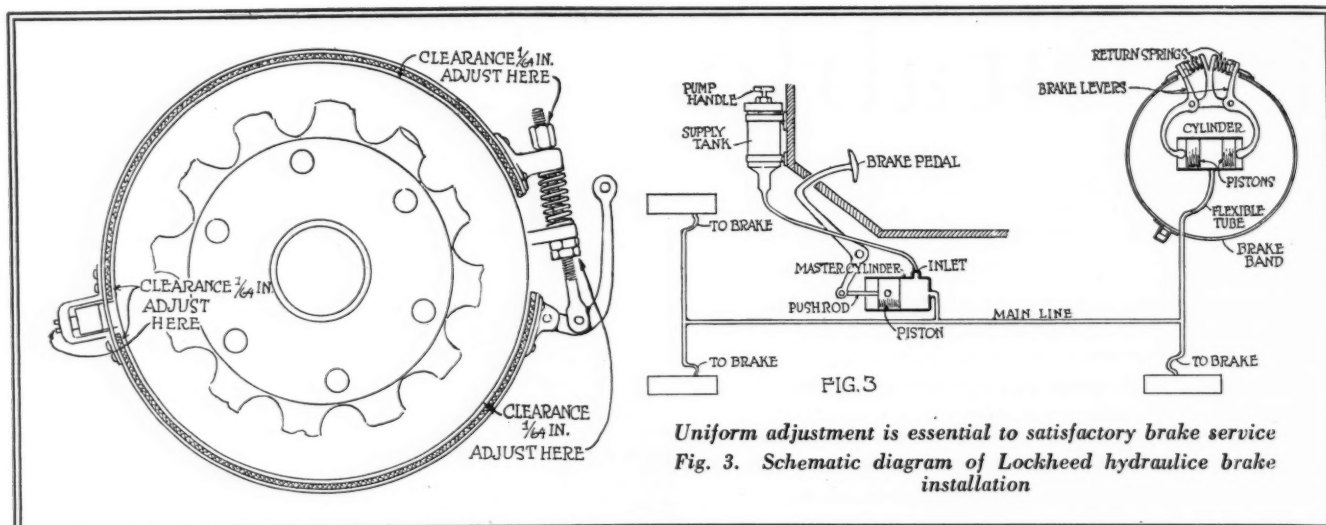


*Different kinds of brake relining machines. These are the pieces of equipment that put speed and profit in the job by quickly removing the old lining, without distorting the band.*

ing being contracted upon, or expanded within, a steel drum mounted on the wheels but for the emergency brake sometimes located on the propellor shaft.

*(Continued on next page)*





(Continued from preceding page)

The lining, the linking mechanism, and the actuating mechanism will now be considered.

#### Requirements of a Good Lining

The first thing that one is likely to think of in selecting a brake lining is the frictional qualities. That is important, but other things must be considered. The lining must not readily absorb oil or grease, for that would destroy its braking ability. Also it must not absorb water as this would make it swell and thus cause dragging and loss of power. The lining that is selected must be durable and thus resist wear to the utmost if economical operation and freedom from frequent adjustment is to be obtained.

#### Applying the Lining

Removing the old lining is the first problem and one that has a direct bearing on the results to be obtained from the relining job. The old hammer and chisel method of removing linings is slow and is very likely to distort the band. The foot operated machines of today either punch out or shear off the rivets with no damage to the band and do the work much faster than any other method.

In most machines it is but the work of an instant to convert the mechanism over for drilling or punching the lining and countersinking it for the rivets.

The lining should then be cut, allowing a gap of between  $1\frac{1}{2}$  and 2 in. at the brake band anchor. In riveting this lining to the band it is best to rivet each end first leaving a slight excess of lining between so that the lining will hug the band and not have to be pulled to it by the rivets. Unless the lining does "hug" the band and unless the band is true the job will prove unsatisfactory, as the brakes will be hard to adjust and will be short lived. The rivets must be countersunk as illustrated or poor brakes with scored drums will result.

#### Checking the Brake Drum

It is absolutely necessary that the brake drum be smooth and true in order to get proper brake service. Obviously an eccentric drum will make it impossible to adjust the brake and a rough drum will quickly wear out the lining.

If the drum is scored or worn it should be trued up on a large lathe or special brake drum lathe.

Wheel bearings should be adjusted so that there is no perceptible play in them. If the rear axle shaft is

sprung or if for any reason the wheels do not run true this should be corrected as this wobbling motion will quickly wear out the lining.

#### Adjusting the Pedal and Levers

Regardless of whether we are adjusting two or four wheel mechanical brakes the principles are the same. Hydraulic brakes will be considered later.

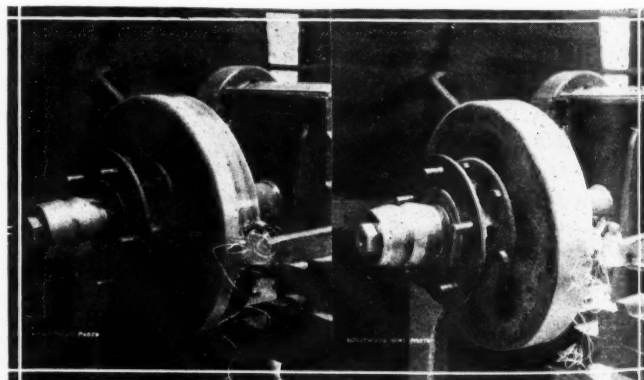
First, all rust, mud and grease should be removed from the levers, rods and connections. This mechanism must move freely. Then in order to get maximum travel of the parts and the greatest leverage the different parts should be adjusted as illustrated in Fig. 1. It is impossible to describe here the location of all such levers in the different cars, but whether found on the brakes, the equalizing shaft or elsewhere, the control rods should be adjusted so that the lever when in the released position is as shown in illustration A of Fig. 1.

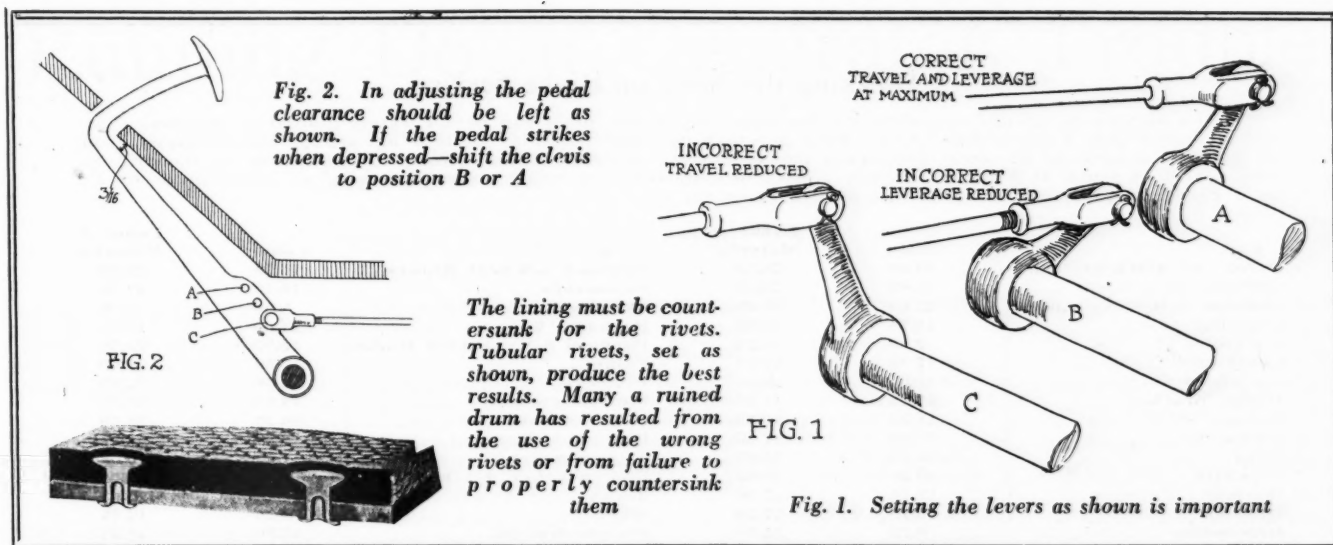
Due to the angle of the lever as shown in B leverage is greatly reduced. In addition, if this angle were in the opposite direction the travel would also be reduced.

In C, while the leverage is O. K., the lever is starting its motion at the point where it should be finishing. From that position on, the leverage will reduce, and also the travel will be limited.

In adjusting the pedal position there should be a clearance of  $\frac{3}{16}$  to  $\frac{1}{2}$  in. between the pedal and the floor boards as shown in Fig. 2. Some cars are pro-

*A true brake drum is necessary for satisfactory performance. Photograph at left shows the drum being turned down on a special brake drum lathe. The finished job is shown at the right*





vided with an adjustment such as is shown in Fig. 2 at A, B, and C so that if the pedal strikes the floor boards before the maximum travel has taken place the clevis can be shifted from C up to B or A to increase the travel.

When the brakes are locked there should still be at least an inch between the pedal and the floor boards.

#### Hydraulic Brakes

Briefly, hydraulic brakes consist of a master cylinder operated by the brake pedal, and separate brake cylinders on each wheel on which a brake is mounted. These units are connected by means of piping with flexible tubing for the final connections to take care of spring action and the like.

Referring to Fig. 3, it will be seen that when the pedal is depressed the piston is forced into the master cylinder. As the fluid is incompressible it flows out through the line and into the different brake cylinders. Within these cylinders are two pistons that connect with the brake band through brake levers. The action just described applies absolutely uniform pressure on

all brakes, assuming of course that none of the moving parts are stuck with mud or rust.

When the foot is removed from the pedal the return springs expand the band, return the pistons to their original position and consequently send the fluid back through the line, forcing the master piston back and the brake pedal up to its original position.

In the operation of a system of this kind it is important to use only the fluid that is supplied by the manufacturer of the brakes. One cannot afford to take a chance with corrosion in these nicely fitted cylinders and pistons. If it is impossible to obtain the recommended fluid a 50-50 mixture of glycerine and alcohol will serve well.

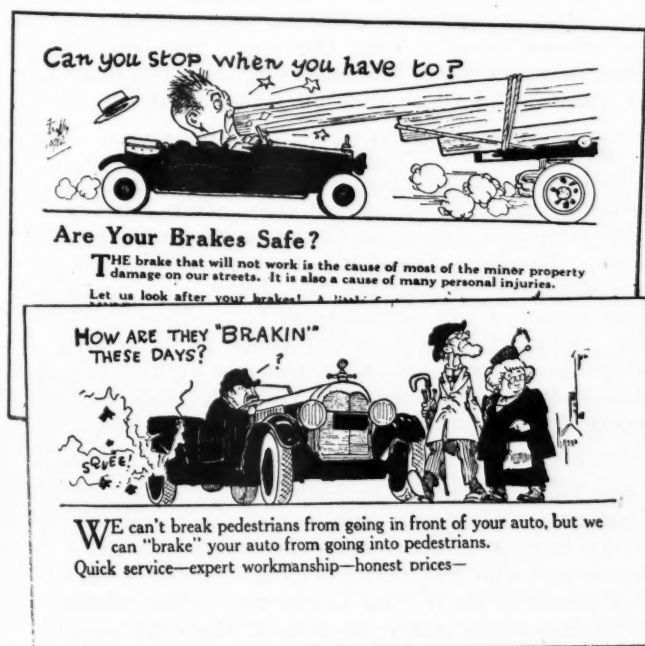
#### Removing Air from Line

If any part of the line is disconnected air is likely to get in. Such a condition is dangerous as it reduces the effectiveness of the brakes. To remove air from the line proceed as follows: Remove the cover to the supply tank and withdraw the plunger. Fill the tank with the recommended fluid. Remove the dust screw located at the top of the brake cylinder between the brake levers, and force a short length of rubber tubing over the connection. The other end of the tube should be placed in a clean glass jar or tumbler. Unscrew the bleeder connection three quarters of a turn and then force the pump handle on the supply tank slowly down. This will force the fluid through the line and any air bubbles will be thus carried out. Do not use the old fluid that is removed, again.

This "bleeding" operation should be repeated on each wheel. Be careful that the liquid in the supply tank does not become exhausted during the bleeding operation as that would admit air to the line and it would then become necessary to repeat the operation that had just been performed.

To remove air from the master cylinder the cover and plunger of the supply tank must be removed and the brake pedal pressed to the floor. This will cause the fluid to rise in the tank and carry any air bubbles with it. These will rise to the surface and break and then the tank can be supplied with enough fluid to fill it. As the plunger of the supply tank is pressed down into place the brake pedal will return to its normal position. The plunger should be screwed into place as tight as possible by hand in order to prevent the return of any fluid from the line, but a wrench should never be used on it.

(Continued on next page)



Examples of mailing cards that "bring home the bacon." These cards are quite effective when mailed at regular intervals



## Breaking the News on Brake Service

Brake service is rapidly advancing to the point where the price can be accurately quoted in advance. Special machines plus a knowledge of the work are making that possible. Following are prices averaged from the lists of several of the most prominent manufacturers of brake lining. None of the figures on the original lists varied as much as a dollar. While it may be impossible to apply these figures in all cases these should be a good guide for the development of flat rates for this work.

Car	Labor	Labor & Material	Car	Labor	Labor & Material
Buick "6" 4-Wheel Brakes.....	21.50	26.25	Oakland 4-Wheel Brakes.....	16.50	20.50
Cadillac 63.....	15.00	26.00	Oldsmobile.....	10.75	17.50
Cadillac 4-Wheel Brakes.....	25.00	33.00	Overland.....	8.50	12.50
Chandler.....	11.75	19.00	Packard "6".....	11.00	18.75
Chevrolet.....	7.50	11.75	Packard 6-8 4-Wheel Brakes.....	12.50	23.50
Chrysler.....	17.50	29.25	Paige.....	12.50	21.00
Cleveland 43.....	21.00	25.00	Peerless.....	12.50	22.75
Dodge Brothers.....	11.25	17.00	Pierce-Arrow.....	14.75	25.00
Durant "6".....	11.25	18.50	Pierce-Arrow.....	16.75	25.50
Essex "6".....	10.50	17.25	Reo.....	13.50	22.75
Flint.....	11.00	18.25	Rickenbacker.....	11.25	15.00
Franklin.....	10.00	15.00	Rickenbacker 4-Wheel Brakes.....	19.75	23.75
Haynes.....	12.75	17.00	Rollin.....	10.75	20.00
Hudson.....	13.25	22.50	Star.....	8.25	12.75
Hupmobile.....	9.75	15.50	Stearns-Knight.....	12.50	21.25
Jewett.....	11.00	14.75	Studebaker Standard.....	10.50	17.00
Jordan.....	10.50	17.75	Studebaker.....	11.50	18.50
Lafayette.....	15.00	22.75	Stutz "G" "H".....	9.00	15.25
Lexington.....	11.25	15.25	Stutz.....	13.25	23.50
Lincoln.....	17.75	27.50	Velle.....	10.75	17.25
Marmon.....	13.00	20.50	Wills Ste. Claire.....	11.25	18.00
Moon.....	11.25	18.75	Willys Knight.....	12.50	18.75

Where the actuating mechanism is rusted and stuck from neglect of lubrication an additional charge should be made for lubricating it and freeing it up. This is generally priced on an hourly basis.

(Continued from preceding page)

With the bands relined, the drums smooth and running true, and the brake actuating mechanism operating freely and in proper adjustment the car is ready to have the bands installed. In doing this lubricate the brake lever and the brake band anchor bracket so that the parts move freely.

The first adjustment that is needed is at the brake anchor. This should be so adjusted that the clearance between the lining and the drum is 1/64 in. A hacksaw blade with the teeth ground off makes a good gage for checking this.

The bottom of the band is adjusted by means of the nuts at the bottom of the brake lever mechanism. One of these is a lock nut and care should be exercised to lock the nuts by means of two open end wrenches when the right adjustment has been obtained. The clearance here is also 1/64 in.

The top of the band is readily adjusted to a clearance of 1/64 of an inch by means of the upper adjusting nut on the brake lever mechanism. Unfortunately this adjustment is commonly the only one that is given attention by some mechanics. All three of these adjustments are vital.

### Testing the Brakes

After all settings are correct the gripping power of the brakes should be tested. How essential this final test is will be appreciated after looking at the dynamometer brake testing machine which William Ellenbeck, the brake specialist of Hollywood, California, has

installed. He recognizes the importance of exact adjustment.

But we can not all hope to have a volume of business that would warrant the expenditure of several thousand dollars for testing and adjusting equipment.

The crude but effective method of locking the wheels is still used by many to test the brake adjustment. The thing to watch in doing this is that the tires are equally inflated, for a soft tire has more gripping power than a hard one has. Also if there is a load in the car or truck it should be uniformly distributed. The floor should be clean and free from oily spots if the test is to be of any value.

With the conditions as they should be the car is speeded up to about 10 miles an hour in low gear and the brakes locked. Then the wheel that was last to slide, as measured by the marks on the floor, must have its brake adjusted so that all wheels grip alike.

### Bringing the Customer Back

No lining manufactured can have a permanent adjustment made on it immediately after relining. It takes time and service to fit the lining perfectly to the drum. The band, therefore, must be left a little loose in order to avoid burning the lining. As usage perfects the fit it will be necessary to readjust the brake. The customer should be informed of this when he takes his car out and if he does not return in a few days should be phoned or written to and invited to return for the final adjustment.

## Machine Developed by U. S. to Measure Roughness of Roads

Development of a "roughometer," to measure the relative roughness of roads, has been completed by the United States Bureau of Public Roads after a long series of tests in which many devices for this purpose were tried out.

There has been considerable demand for such a device, the Bureau officials state, as it will prove of great eco-

nomie value in permitting highway officials to establish a basis for rating contractors, engineers, inspectors and others having direct responsibility for paving. The instrument also will permit officials to detect faults in road construction in time to prevent serious damage to surfacing, which might be done if the road were permitted to remain rough.

The device can be attached to any motor vehicle without impairing the appearance of the vehicle, the Bureau states.



# Running Down Generator Trouble

*Bill Fixit's Apt Pupils Come to the Rescue of Their Friend Joe and Save Him Having to Take the Machine Off*

By A. H. PACKER

**B**ILL FIXIT'S men had had enough of traveling. The open road was fine and the experiences they had encountered had been both interesting and instructive, but the gypsy urge had played out and both the Red Head and the Valve Grinding Fiend were anxious to get back. With the old Speedway car packed and ready they had a last breakfast with Jake Penders of Coal City, then said good bye and started for Westville.

As they traveled along, the Red Head said, "I wonder how Joe is doing with his electrical work."

"Joe?" said Valvy. "Who's Joe?"

"The fellow at Wobble Inn where we stopped the first night out on our trip," answered Red.

"I remember now," said Valvy. "He found dirt in our carburetor when we were hunting for ignition trouble."

"Yes," said Red with a grin. "But we got even with him and showed him where he was all wet on wiring up those buses. I just wonder how he is getting along with his other electrical work." And that evening they found out, for when still a hundred miles from Westville, darkness fell and the boys decided that Wobble Inn was as good a place as any at which to spend the night.

Joe was glad to see Bill Fixit's men and was eager to show them his new front window and the way he had it fixed up to display accessories under a system of indirect illumination. Then back in the shop he had a new electrical testing outfit that did great things, according to Joe.

"I pulled a boner just this afternoon, though," said Joe. "Or rather my kid brother did it for me. He helps me some in the shop and this time it was a generator that I repaired and tested and then gave to him to put back on the car. On this particular car the carburetor is in the way and you also have to take off the radiator in order to get the generator on or off. Just as I thought the job was about done I found him shifting the whole brush ring stead of adjusting the third brush only in order to give the machine its final setting on the car."

"I was afraid to let the car go out without knowing that the brushes were set right and it was just before you came that the owner went away after I had told him it would be tomorrow before I could let him have the car."

"You're right about having the generator off being

## BILL FIXIT STORY No. 26

**P**REVIOUS installments in this series by A. H. Packer were published March 19, April 2, April 16, May 7, May 21, June 18, July 30, August 13, September 3, September 24, October 22, December 10, and December 31, 1925; also February 11, March 11, April 1, April 22, May 20, June 10, July 1, July 22, August 12, September 2 and September 23, 1926.

**SYNOPSIS:** Bill Fixit's electrical trouble shooting men start on a trip in a Speedway car. They stop at various places along the way and in a mining community are robbed of all their money. This necessitates getting a job with the local electrician, Jake Penders, to whom they give some helpful information gained working in Bill Fixit's electrical department. Directional radio is used by government agents in locating a gang of crooks and the boys' money is recovered. The trip is continued and the night after leaving the mining town they stop with Barney Oldfield Smith, an amateur race driver and help him with a magneto job, where a new condenser is needed. After getting a number of electrical pointers from Bill Fixit's men, Barney decides to open an electrical shop. Bill Fixit's men stay with Barney for a while helping him get his shop started and finally decide it is time to be going home again. On the way back they again stop with Jake Penders and give him some pointers on testing armatures and locating field circuit troubles.

the best way to set main brushes," said Red. "But I believe we can figure some way of getting them set on the car. It would sure be worth figuring on with a bus like this where you nearly have to blast to get the machine out."

### Figuring It Out

"Before we go ahead and do anything we want to figure what happens when the main brushes are on neutral and when they are not. On the car we can not use the motor-ing test, for the coupling interferes with it. Then we will have to see what we can figure out about a generator. The third brush action unbalances

the magnetic field so we will want to eliminate the effect of this brush. This means it must be lifted from the commutator, for if it is not lifted it will cause a short circuiting effect on the commutator segments it touches.

"If the generator is run at various speeds with no field there will still be a voltage generated but it will be slight, for the only magnetism we have is the residual which just generates a small fraction of a volt in the armature.

"I know," said Valvy. "Why not use a millivoltmeter?"

"Right," said Red. "It will work fine. We can just connect it to the generator terminal and to the frame of the machine and then run the engine at some certain speed and shift the main brushes to get the point where the millivoltmeter reading is a maximum. Then a point just a hair farther in the direction of rotation would be permissible, for it would give a little better commutation when we start to get the field distortion that occurs with any generator when current starts to flow through the armature coils."

"Yeh, that's a fine scheme," said Joe. "But how do we work it when I do not happen to have a millivoltmeter."

### Trouble Shooting on Noah's Ark

"That's something else again," said Red. "I have a combination instrument with all sorts of scales on it out in the car, but we should do this job with your equipment if possible. What sort of testing equipment have you outside of your pliers and the new test bench?"

"An ammeter off of a Ford car," said Joe. "And a voltmeter from an old electric,"

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(Continued from preceding page)

"Must be going to do some trouble shootin' on Noah's Ark," Valvy remarked.

"Don't razz the boy," said Red. "He hasn't been in the game very long. When he is as clever as you are he will know that equipment serves two purposes, it helps do the job and helps collect a decent price for the work."

Valvy gave a sidelong glance at Red, not quite sure whether he was being kidded or not, then remarked, "I bet if Bill were here he would be able to test with Joe's meters if he had to."

"Whadda yuh mean, Bill?" said Red. "After shooting electrical trouble through seven counties I guess we can too. All we need is a little battery current sent through those field windings with the third brush still off duty as well as off of the commutator." And the Red Head proceeded to make a sketch (Fig. 1) to show how separate excitation with battery current could generate enough voltage so that an ordinary voltmeter could be used.

"But that will give field distortion," said Valvy. "For we have the same value of magnetism and voltage that we would have with the generator running."

"But you forget," added Red, "that this field current does not come from the armature and it is only the armature current that acts to twist the magnetic field. That means we can set the brushes for maximum voltage at some certain speed just as well as we could using the residual magnetism and a millivoltmeter."

#### Eager to Try the Plan

Talking never satisfied Joe. He was one who always wanted to try out the ideas to check them in actual practice. While Bill Fixit's men had been arguing the various features of the test he had been busy on the car that had caused all the excitement. The third brush was hard to get at, but with the help of a button hook, Joe fished it up away from the commutator and then managed to disconnect the field lead and bring it out where it could be connected to one of the battery terminals and when the Red Head and Valvy were through arguing, he was ready to set the main brushes.

After the engine had warmed up a bit it ran at a steady speed and the brush holder ring was shifted first one way and then the other. At first it seemed that at a certain place it did not make much difference if the brushes were shifted but a slight amount so Joe began to wonder whether the right point could be found this way after all.

Then Red came to the rescue. The greatest reading they could get was 4.3 volts, so Red suggested they shift the brushes each way until the reading was 4.0 volts even. This was done and the setting marked where this reading was obtained. Then the brushes were moved the other way until the same 4 volt reading was obtained and the position again marked.

"Now," said Red, "we will put the brushes exactly in between the two marks and we will figure that is the neutral position."

"That's an interesting test," said Joe, "and sure pulls me out of a bad hole but next time I will tell my kid brother to let the adjustment alone unless he knows for sure which one of the brushes he is operating on. I never knew you could make an adjustment like that with the generator on the car. Wouldn't it be great if it were also possible to test a generator on the car so that you wouldn't take the machine off as I have done sometimes, only to find that it is O. K. and the trouble is in switch, ammeter or wiring."

"Gee, is that what you do?" said Valvy somewhat scornfully. "One of the first things Bill Fixit showed me was how to tickle the cutout and watch the ammeter to tell what was wrong before I ever touched a wrench or screw driver to the machine itself."

"Yes," said Red. "All the systems are pretty much alike and on practically all of them you can make sure that the trouble is inside the generator before you pull it off. It is not always possible to determine just what is wrong, although in most cases even the nature of the trouble can be determined by the cutout test."

#### How the Cutout Test Is Made

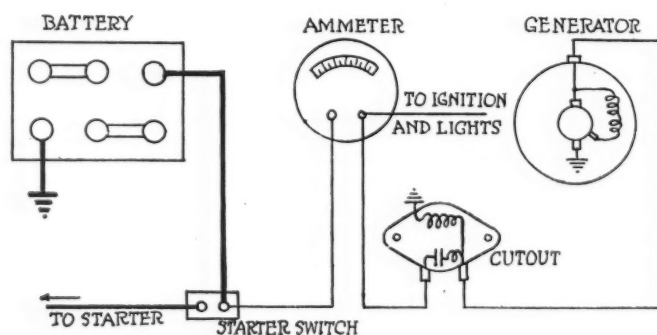
"Take these circuits (Fig. 2)," said Red, "for they are typical. We have a grounded battery, with a heavy lead to the starter switch. From the battery side of the starter switch a wire to ammeter and from the other ammeter terminals wires to cutout and lighting and ignition switch."

"Closing the cutout points allows current to flow to the generator. If the cover of the cutout is on tight you can accomplish the same thing by shorting the cutout terminals with a pair of pliers."

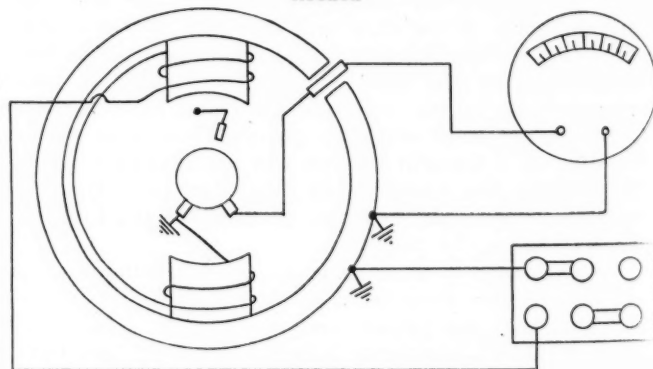
"There are now two circuits through which the current should flow, the armature and the field circuit of the generator. When the cutout points are closed or the terminals shorted we may get no current, a slight current, a fairly heavy current (14 to 20 am-

(Continued on page 32)

Essential circuit of the average car. Location of generator trouble is easily accomplished before generator is removed by closing the cutout points and observing the ammeter indication



Setting main brushes on neutral while generator is still on the car. The field can be separately excited from a battery, and a voltmeter can be used to get the position that gives maximum voltage. Without a battery a millivoltmeter is needed





# How Star Fleetruck Gets Two High Speeds

By DONALD BLANCHARD

**T**HROUGH the use of a four-speed transmission of unusual design, the effect of two high speeds is obtained in the new Star six-cylinder Fleetruck. The shift from one of the "high" speeds to the other is made easily and surely, and in either of these speeds operation is almost equally quiet and efficient.

Fourth speed is actually the high of the transmission and in this position the drive is direct to the helical bevel rear axle which has a reduction of 5.10 to 1. Third speed is undergeared 1.39 to 1 giving an overall reduction to the rear wheels of 7.10 to 1. The shift from or to this speed is made by a sliding clutch which is positive in its action. First, second and reverse speeds are obtained in the conventional manner except that the shifts are made by moving gear clusters on the countershaft and reverse idler shaft instead of by shifting gears on the mainshaft as is the usual arrangement.

Quiet operation in the undergeared third results from the use of two internal gears to provide the speed reduction. With this type of gearing, there are a greater number of teeth in contact and they come into complete mesh more gradually than with spur gearing, both of which factors tend to reduce noise. Moreover, lubrication is better as centrifugal action tends to retain the oil between the teeth of the internal gear instead of throwing it out as in the spur gear. In a test drive, the writer found that, except for the difference in engine speed, it was impossible to tell whether third or fourth speed was engaged which testifies to the quietness of the undergearing. The shift can be made easily without declutching but, naturally, a smoother shift is obtained if the clutch is disengaged.

Losses in this undergeared third speed are about two per cent of the power transmitted so there is no excessive amount of heat to be dissipated. Such heat as does develop is easily taken care of by the oil which is cir-

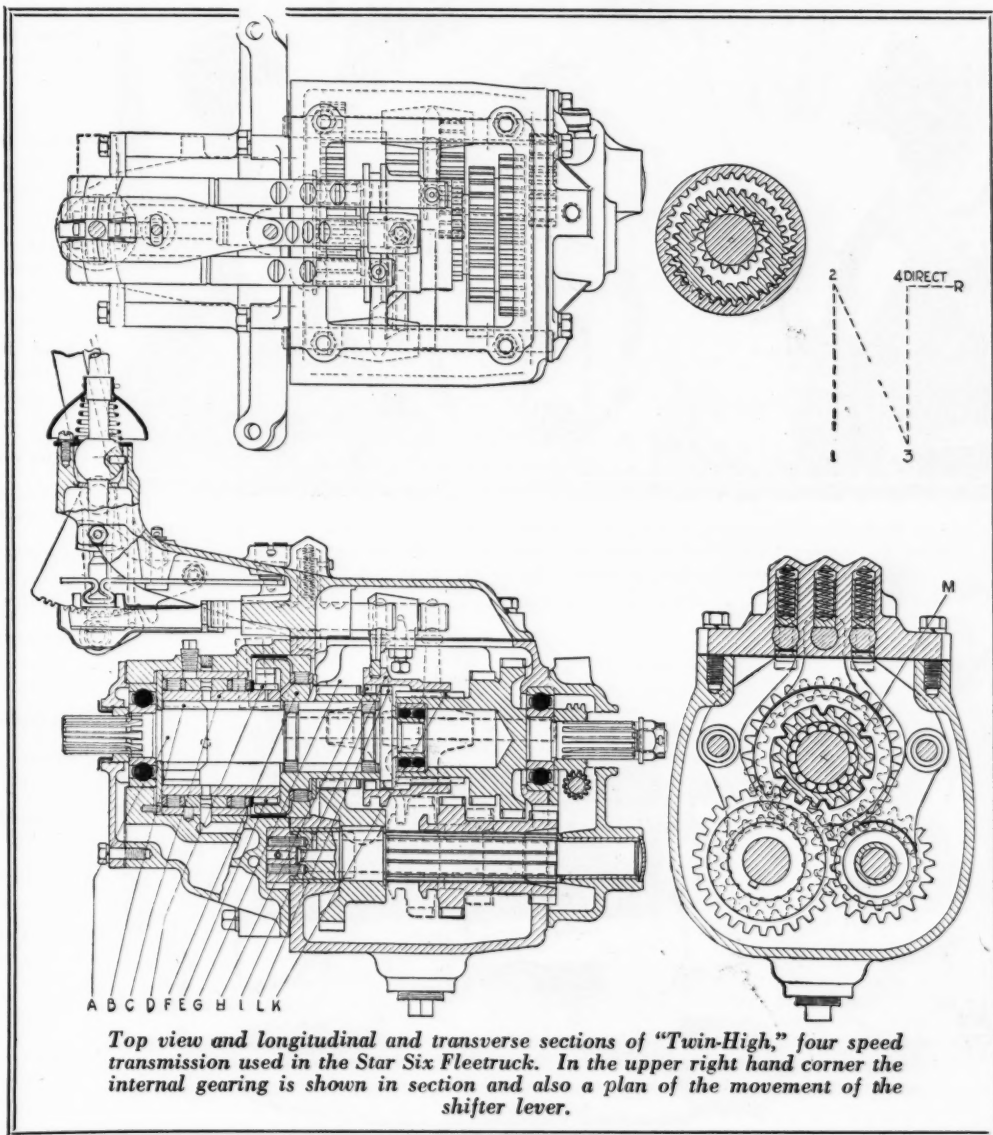
culated positively by means of a sliding vane type pump driven from the forward end of the countershaft.

Referring to the accompanying drawings and diagrammatic sketches, the transmission is mounted amidships and is driven through a flexible coupling. The driven shaft of the transmission is mounted in an annular ball bearing at its forward end and at its rear end on two roller bearings inside of a cup gear which in turn is carried by a large roller bearing in the main case. A stub extension at the extreme rear end of the driven shaft has mounted on it a double row ball bearing which supports the forward end of the second and low gear cluster. This driven shaft has a 17 tooth pinion A which meshes at B

with a 21 tooth internal gear on the sleeve C. This sleeve is supported in the case by two roller bearings and has an external gear D of 31 teeth at its outer end which meshes at E with an internal gear of 35 teeth. It will be noted that there is only a four-tooth difference in each case between the driving pinions and the internal gears which makes the gears come into full mesh very gradually and gives quiet operation—e. g., velocity of approach and recession of teeth in mating gears is low as compared with spur gearing.

The 35 tooth internal gear is part of a second sleeve F which is piloted in the case by the large roller bearing previously mentioned and maintained

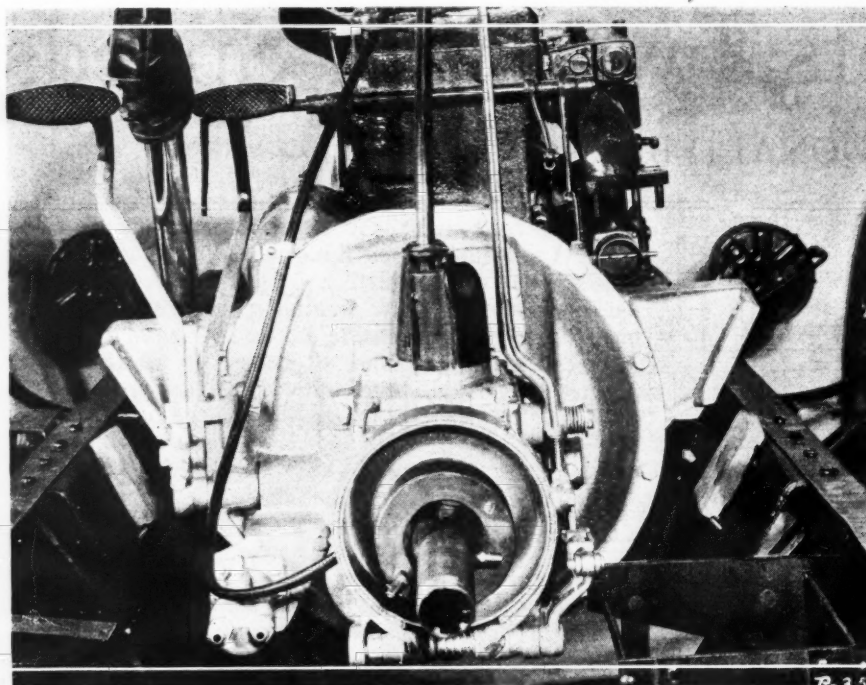
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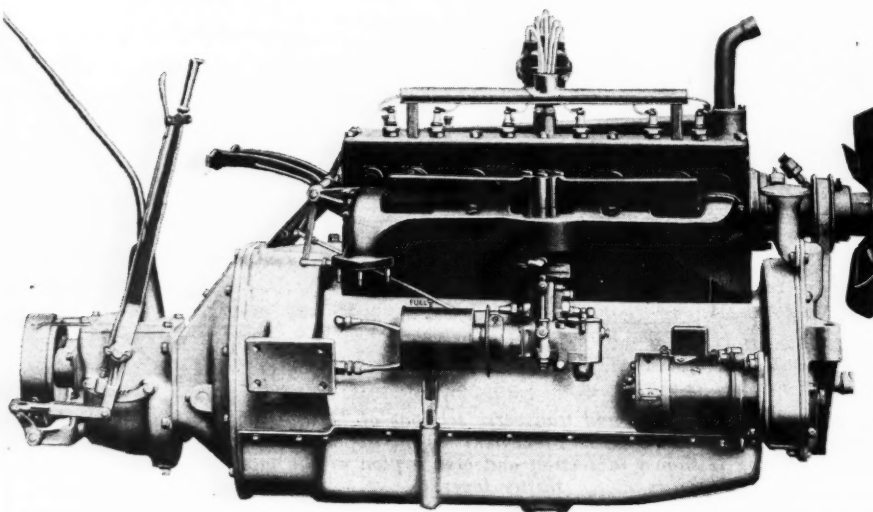
Top view and longitudinal and transverse sections of "Twin-High," four speed transmission used in the Star Six Fleetruck. In the upper right hand corner the internal gearing is shown in section and also a plan of the movement of the shifter lever.



# Some Details of the Peerless "90"



The Peerless 6-90 engine is entirely insulated from the frame at the rear supports by rubber blocks. Note that the angle at which the faces of the support arms are machined tends to wedge the power plant into the mounting



Right side of Peerless Power plant, showing manifolding and support arms

PHOTOGRAPHS reproduced on this page show some of the mechanical details of the new Peerless "90" which was described in the Sept. 30 issue of

MOTOR AGE. The prices of this new model range from \$1895 to \$1995. A special feature is the method of cushioning the engine in the frame.

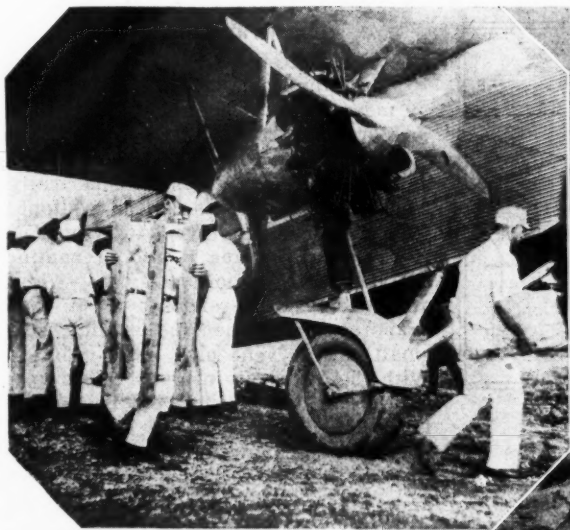
**French Plan Used Car Fair**  
WASHINGTON, Oct. 18.—A new wrinkle has been given the sale of second-hand automobiles by the French, according to a report to the Department of Commerce from the American consul general at Paris.  
There was held a Second Hand Automobile Fair in connection with the Salon de l'Automobile in Paris Octo-

ber 7 to 17. All persons wishing to sell used cars could show them at the second hand exhibition hall by paying a rental, ranging from 30 to 50 francs a day, depending on the car's horsepower, for floor space. Papers attesting each car's history had to accompany the display. Mechanics were on hand to show off the operating power of the used stock.

## Principal Specifications

- Wheelbase**—120 in.
- Engine**—Six-cylinder,  $3\frac{1}{2} \times 5$  in.
- Crankshaft**—Seven bearing, machined all over and balanced.
- Main Bearings**—Bronze back, babbitt lined,  $2\frac{3}{8}$  in. diameter. Lengths: Front,  $2\frac{3}{16}$  in.; Center,  $1\frac{5}{16}$ ; Rear,  $2\frac{7}{8}$ ; Intermediate,  $1\frac{1}{4}$  in.
- Connecting rods**—Big ends, cast-in babbitt,  $2\frac{1}{8}$  in. diameter by  $1\frac{9}{16}$  in. length. Bushing upper end takes  $1\frac{1}{8}$  in. diameter pin.
- Pistons**—Nelson type aluminum alloy with invar strut. Two  $\frac{1}{8}$  in. plain rings and one  $\frac{1}{8}$  in. oil control, all above pin.
- Valve**—Exhaust, silchrome steel; Intake, nickel steel. Length,  $6\frac{1}{4}$  in.; head diameter,  $1\frac{11}{16}$  in.; Stem diameter,  $\frac{3}{8}$  in.; lift,  $1\frac{11}{32}$  in.
- Front end drive**—Morse  $1\frac{1}{2}$  in. chain.
- Cooling system**—Pump circulation. Capacity, three gallons.
- Lubrication**—Force feed to main, crank-pin and cam shaft bearings. Purolator filter. Nine quart capacity.
- Fuel system**—Stromberg  $1\frac{1}{4}$  in. carburetor; Stewart vacuum tank; AC air cleaner and gasoline filter.
- Electrical system**—Auto-Lite.
- Clutch**—Borg & Beck with graphite composition throwout bearing.
- Transmission**—Ratios: first, 3.11; second, 1.70; third, direct; reverse, 3.78.
- Propellershaft**—Tubular with two metallic universals. Hotchkiss drive.
- Rear Axle**—Columbia semi-floating with  $4\frac{5}{11}$  to 1 reduction.
- Front Axle**—I-beam, reverse Elliot with ball bearings to take knuckle thrust.
- Brakes**—Service, four-wheel, external, hydraulic on 14 in. drums, band width 2 in. Emergency on transmission,  $7 \times 1\frac{1}{2}$  in.
- Springs**—Front,  $3\frac{7}{8} \times 2$  in., 11 leaves; rear,  $5\frac{1}{4} \times 2\frac{1}{4}$ , 8 leaves. Shackle bolts,  $\frac{3}{4}$  in. diameter.
- Steering gear**—Ross.
- Tires**—32 x 6 in., Firestone "A" rims, wood wheels.
- Equipment**—Two-filament headlamps, Watson Stabilators all around, Pines Winterfront, front bumper, rear bumperettes. Motometer, dash gasoline gage, automatic windshield cleaner, rear view mirror, stop light, cowl lights. Sedans have dome lights and silk shades for rear windows. Roadster has removable top and windshield wings.

# Gasoline Transportation—*Air, Road and Water*



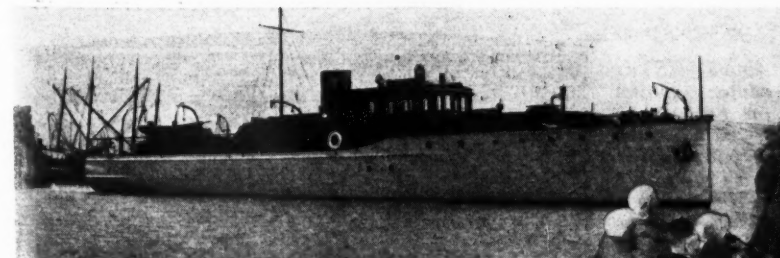
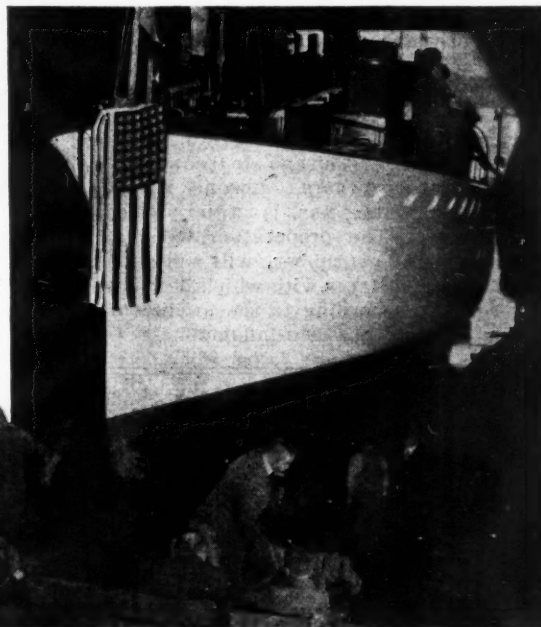
**DELIVERY BY AIR** of an entire Ford car is here being made at the Buffalo air port. It was brought in parts and put together at the field in 23 minutes



**"EL CAMINO REAL"**—"The King's Highway" in English—was originally the trail of the Padres, a foot path along the Pacific shore which extended from San Diego to San Francisco bay. Later when it became the official road of Spain it assumed its Royal name. Next the American Stage Coach followed this route and finally the motor car has demanded the splendid paved highway seen in the picture



**WRECKED AUTOMOBILE PARADE** staged as an object lesson to motorists



**THE YACHT K'THANGA** OF H. O. HARRISON, Chrysler distributor, San Francisco, being christened by Miss Dorothy Harrison, his daughter.



# NEW AND TIMELY OFFERINGS

## New Saf-De-Lite Models

**I**NCREASED intensity of road illumination and simpler installation are among improvements on the Saf-De-Lite models introduced by the Saf-De-Lite Sales Corp., Philadelphia. There are two models, one with black shell and nicked door listing at \$20 and the other in all nickel finish priced at \$25.

The outstanding improvement is the new drop-forged universal mounting bracket which has but one point of adjustment for aiming instead of two on the previous cast brackets. The new bracket is said to take care of 95 per cent of the cars as it may be applied to flat or round lamp tie-rods, the spring horn and other points as shown in the accompanying illustration.

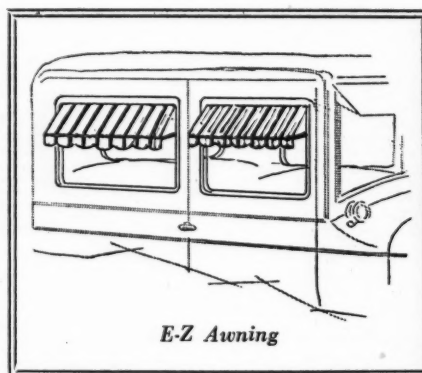
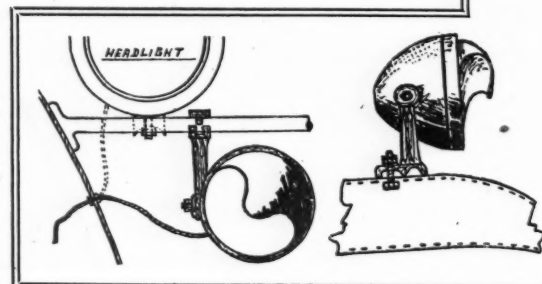
An increase of one inch has been made in the diameter of the lamp and the shield design has been changed to give a more scientific light distribution. A large cork gasket under pressure together with a circumferential bead in the shell insure a dust and water-proof enclosure.

## Tandem Windshield Wiper

**T**HE Stromberg electric windshield wiper, made by the Stromberg Motor Devices Company, 58-68 E. Twenty-Fifth street, Chicago, is now provided with a tandem attachment which is claimed to offer greatly improved visibility and efficiency in bad weather driving. Stromberg calls its Tandem Windshield Wiper "Safety Insurance," declaring the tandem equipment adds but small expense to the initial outlay for the wiper, itself, and requires but little additional power to sustain operation. Installation may be quickly and easily accomplished.

## Lozone

**L**OZONE Certified Anti-Freeze is a cooling preparation which takes the place of water in the radiator and which it is said will not freeze at 50 degrees below zero and which will not boil below 220 degrees. It is marketed in drums by the Corace Laboratories, 29 S. La Salle st., Chicago, to be sold in bulk to car owners. Lozone is not added to water nor is water added to Lozone. The preparation will not injure metal or rubber, will not gum or damage surfaces with which it comes in contact, according to the producers. It is odorless and non-inflammable.

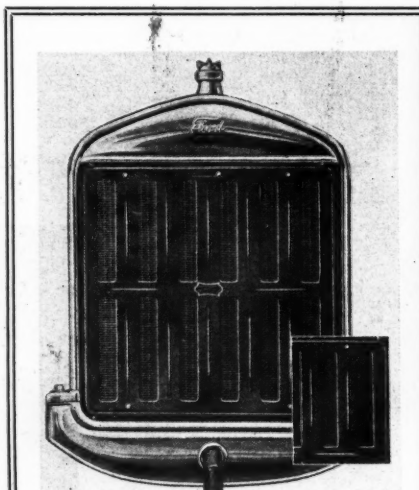


E-Z Awning

## Star Winter Shutters

**S**TAR All-Metal Winter Shutters for Fords are produced by the Star Shutter Company, 23 N. Desplanes St., Chicago. It is said this equipment will fit the late model Fords without changing the headlight bar and that its ample clearance between the bar and radiator facilitates operation. The shutter is made of 22 gage steel, with baked enamel finish. A knob at the top of the shutter is employed for adjustments. Long-life is claimed for this device by the company which lists the Ford shutter at \$2.75.

The same company also has an All-Metal Star Shutter for Chevrolet models 1925-1926 and 1927. This, too is offered as a practical and effective winter appliance. The Chevrolet shutters retail at \$3.



Above — Star winter shutter for Ford. Left — Safe-De-Lite, showing two universal mountings. Right — Stromberg tandem windshield wiper

## Vapotrap

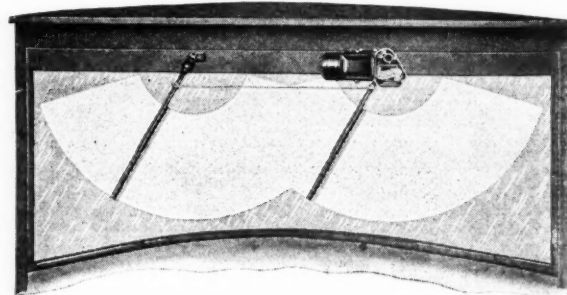
**L**OSS of water and alcohol from the radiator is claimed to be prevented by means of a device manufactured by Jo Berge Co., 233 Broadway, New York. It consists of short rubber sleeve, with one end sealed and extended spherically. The Vapotrap, as it is called, is slipped over the end of the overflow pipe from the radiator, sealing it and preventing the loss of the cooling liquid. Water and alcohol when exposed to air will evaporate, even when the opening is as small as the vent pipe on a radiator. With the Vapotrap in place, this evaporation can not take place. The device is designed to withstand the normal pressures encountered in an automobile radiator, but if abnormal temperatures and pressures are encountered the Vapotrap will be blown off, leaving the cooling system open to the atmosphere. Therefore excessive pressures which might injure the radiator cannot be reached. A dozen Vapotraps, each in a separate carton with installation instructions, are packed in an attractive carton of the counter display type. A single Vapotrap lists at 15 cents.

## E-Z Window Awning

**I**N its E-Z Window Awning the Mid-City Auto Devices Company, 1430 South Michigan Avenue, Chicago, has placed on the market an article which it terms both a necessity and a catchy novelty. The awning is said to be easily installed, an adjustable frame fitting the window slides. It serves to protect occupants of the car from the glare of the sun, rain, snow, dust, and drafts, at the same time not interfering with ample vision. The awning is of duck in striped patterns, can be folded up and put under the seat when not needed and the list price for each is \$2.50.

## Have "Reflex" Territory

**S**ALES representation for "Reflex" automobile lights in the St. Louis district has been taken over by the Reflex Auto Light Company, of Missouri, G. C. Donnan is general manager of the company.





# The READERS CLEARING HOUSE

Questions And  
Answers



On Dealers  
Problems

## Longer Drive Shaft for Camping Car

Q.—I have a 1922 model Studebaker in my shop and the owner wants me to cut the frame and add about 42 in. so as to make it the right length for the Big Six drive shaft. What I do not seem to be able to do is to find out where I can secure a drive shaft bearing to place at the end of the present driveshaft. What I want to do is to carry the present drive shaft to a cross member and then place the bearing just in front of the universal, and then extend the other drive shaft. Can you suggest some source of supply on these bearings. I am afraid of using an extra long drive shaft as it might whip and be hard on bearings. The owner expects to build a house on this chassis for camping purposes.—Benson's Repair Shop, Keokuk, Iowa.

The idea we have of the change in construction that you contemplate is shown in a couple of sketches. The upper sketch shows the drive shaft as it is at present where the rear universal is at the axle and the front universal is at the rear of the transmission. The lower sketch shows the construction we think you are figuring on. You will put an extra cross member across the frame and mount a bearing on this cross member. It will of course be necessary to use a strong steel forging mounted on the cross member and through this forging you will have to drill a hole the same diameter as the outside of the bearing which you will use. You will then need a short shaft running horizontally and an extra front universal joint. About the first thing to do is to get the largest standard stock bearing that you can get. We believe the largest bearing used in the Studebaker axle would be satisfactory. We are also giving you the names of three bearing concerns which can probably supply anything you need along this line. Through the forging which supports the extra bearing on the cross member it would be desirable to drill a hole for the addition of lubricant. A pressure con-

nection could then be applied so that grease could be forced to the bearing. Felt washers and metal plates at each side of the bearing support would be necessary to keep the lubricant in. The extra bearing should be as close to the universal as possible to give proper support to the rear of the extra stub shaft.

## FORDSON CRANKS HARD

Q.—We have been reading MOTOR AGE only a few months and find it very helpful, especially the Clearing House. We have here a Fordson tractor which cranks so hard on cold mornings that it is difficult to start the engine by hand. In very cold weather it is almost impossible to turn the engine over. The clutch sticks as long as the oil is cold. We have tried filling radiator with hot water, using light oil, and releasing clutch with but little effect. Is there any remedy for this trouble.—Herbert Waltner, Hurley, S. D.

This sounds as if the clutch is worn so that it does not readily release. Another possibility is that the lubricant from the transmission is working into the clutch and engine. A remedy for such condition was discussed on page 24 of the October 15, 1925, issue of MOTOR AGE and as you were not a subscriber at that time we are sending this page to you. If the gear shift is left in the neutral position we hardly see how there could be much drag even if the clutch were not releasing properly unless the grease of the transmission is old and gummed up. If this is the condition present it would pay to clean out the transmission case thoroughly, washing it out with kerosene and then using heavy lubricant, but one that flows readily, such as 600W. There is evidently some mechanical drag due to wear of various parts which would seem to indicate that the engine and clutch need to be overhauled. Possibly some of the other MOTOR AGE readers can offer suggestions which will be helpful.

## Reader Suggests Grease Leak Remedy

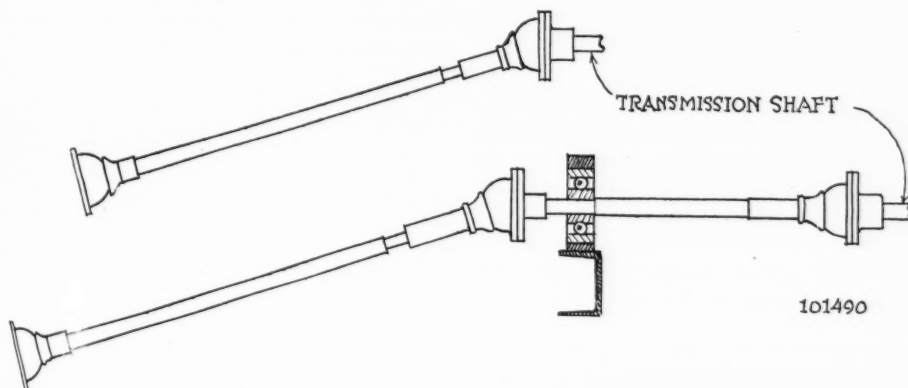
Q.—Here is a "helpful suggestion" for the New Jersey Reader who mentioned trouble with grease leaking from front hubs. This article was in the Sept. 16, 1926, issue of MOTOR AGE on page 25. Some of the soft cup greases that are furnished for use with pressure guns will attain the consistency of medium engine oil after being churned by the roller bearing, especially in warm weather. This results in the lubricant leaking out and being thrown on the fender and tire. My recommendation is to use heavy cup grease or some special non-liquifying grease, even if it cannot be injected with a gun.—California Reader.

We appreciate the suggestion but wish to point out that with a pressure gun there is always a tendency to continue forcing in lubricant until the interior space is absolutely full. Then warmer weather is bound to produce expansion which will force out some of the lubricant. There is a danger in using grease which is too heavy for it tends to collect at certain portions of the bearings. We feel that it may be safer to use lubricant which is a little too thin and which will really flow to all surfaces rather than have a grease which is in danger of congealing and affording no lubrication when the first cool days approach. As long as lubricant tends to work out of the hubs it is certain that lubricant is also getting to the bearings.

## TIRES SHOULD SPIN TRUE

Q.—Would like to know what to do to a 1926 Rickenbacker 6 to keep the front end from shaking at high speed. The oil pressure also drops to 30 lbs. when running at high speed.—Elmer W. Goetz, Olive Cycle & Motor Co., St. Louis, Mo.

In regard to the front wheels would suggest checking carefully to see that the rims are square on the wheels. This can be done with the axle jacked up and the wheel spinning. If wheels wobble it tends to start them shimmying at high speed. Another thing with balloon tires, is to check the balance to make sure that the tires do not tend to settle at any particular position. If they do, counter-weights should be used on the wheel so as to neutralize this tendency. The toe-in of the tires should be  $\frac{1}{8}$  in. In regard to the oil pressure believe that it will only be necessary to increase the tension on the spring in the oil release valve. This is found on the left side of the engine back of the carburetor. The cap on the release valve is taken off and the nut at the top is tightened or turned clock-wise after which the cap may be replaced.



Suggestion for drive shaft construction when increasing wheelbase

# Planning Your New Building

By Tom Wilder

## Enlarging an Old Building

Q.—Am enclosing a sketch of my ground and present building and am asking your aid and suggestions in adding on the present building so as to make a neat appearing place of business. I have indicated the present building and the way it is being used. I built this a few years ago and purposely set the building back from the lot line so as to be able to put in a modern front when I could. We want, if practical, an entrance from the front at one side. We want a showroom for cars and a stockroom of ample size, also office room.

We are in a town of 1500 population and have a 120 car contract. We do not want to enclose all of the vacant lot at present, but will probably build the front and extend it back about 50 ft. On the rear we wish to bring our building out to the lot lines and have our service entrance there. We believe our shop is large enough and it has plenty of light.—Thomas Motor Co., Seneca, Mo.

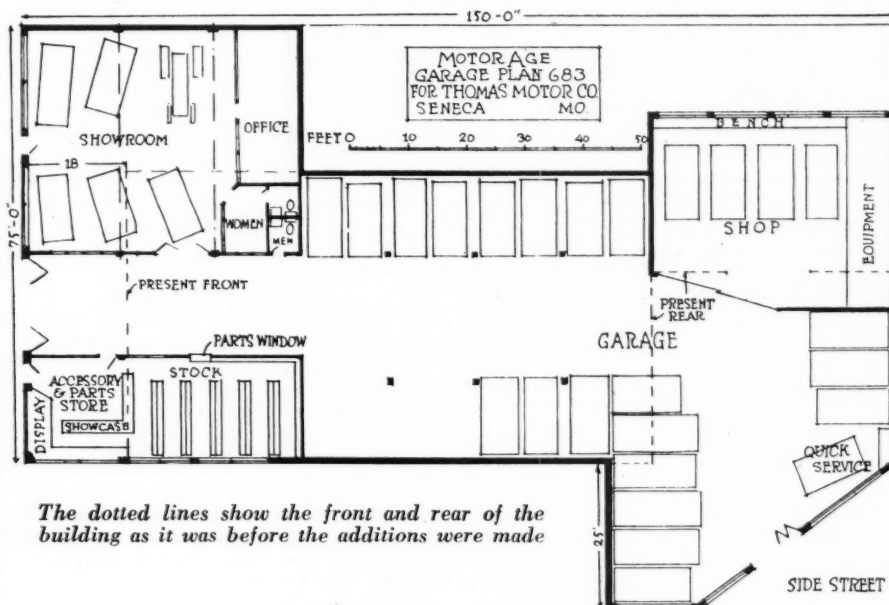
Everything considered we believe it best not to place your front entrance on either extreme side, but keep it about where you have it now, using your present office space for an enlarged accessory and parts store and stockroom and enlarging the other side to the full width of the lot for showroom and offices.

This makes the minimum in alterations and divides the space about as it should be. We would think that your establishment were large enough to support a parts and accessory department divorced from the rest of the office and if this is the case the separation would not be undesirable. The roof over the showroom should be supported by two trusses so that the room would not be hampered by posts. Otherwise the construction of the forward part would not be changed.

The garage section remains about as it has been with the exception of removing the part of the rear wall as shown by dotted line to make the new part work in better with the old. This of course, is not essential but will give much better working conditions.

We would think it advisable to enlarge your shop in spite of the fact that you say it is large enough, moving the partition back about as we have indicated. This would give a little more working space inside and make it easier to get cars in and out. You may, however, think this unnecessary and this is really for you to decide.

We have made no provisions for using the yard back of the showroom but as this would be very good overflow storage space a doorway might be placed in the side of the storage section so that cars could be driven into this yard.



The dotted lines show the front and rear of the building as it was before the additions were made

READERS CLEARING HOUSE

## LEGAL QUESTIONS ANSWERED

By Wellington Gustin

### TAX ON PISTONS

Q.—I have just read an article in the September 9 issue of *MOTOR AGE* under the heading of "Legal Questions Answered," in which we are much interested, owing to the fact that the same condition confronts us as it does the man referred to. For that reason I am enclosing a copy of a letter from the Revenue Department. The one that we are sending you is but a copy, we have the original in our office.

As your article is contradictory to this ruling by the Revenue Department, we surely hope that your construction is correct. However, the Revenue people are looking for us to pay this tax which has been held off some little time. What action, if any, could be taken?—Edwards Motor Co., Minneapolis, Minn.

The answer which you refer to, as published, is not as detailed as it should have been. It suffered in the editing. The repairman, however, should not be confused with one who makes, produces, or manufactures. If the repairman is also manufacturer he becomes liable for the tax on specified parts and accessories.

The tax is to be paid by the manufacturer. The Rosen Company say, "these pistons we buy semi-finished or rather finished all over, except, etc." According to the ruling you quote those pistons were not "finished all over" and are dubbed semi-finished, and this ruling says the person who finishes the

piston is considered the manufacturer.

In the Treasury Decisions of 1924 and 1925 I find no further rulings or decisions on this point. In fact, nothing on the subject of pistons as set out. The ruling you quote is very clear. If your work comes within this ruling as to pistons, then I advise that you pay the tax under protest and make application for return or bring suit if you wish to test the correctness of this ruling and interpretation of the law in a court of law.

### Question of Increased Value

If the pistons are purchased in a semi-finished state, and work is done on these pistons enhancing their value as a finished product, then a tax would be just under this law.

My conception of grinding the piston was perhaps erroneous, as being a minor operation. However, if the maker of the semi-finished pistons pays a tax, then the finisher should be required to pay only the tax on the added value of the finished piston. The law provides for this. Then, if no value is added no tax is payable. This gets back to my original conception in answering Mr. Rosen. Double taxation is not intended by the law, but it is up to you to learn if tax has been paid on pistons as sold to you.



# Answers to Readers' Questions

## Compression Test a Matter of Comparison

Q.—What is the formula for testing compression in the cylinders of an automobile engine. It is presumed that there are certain requirements such as temperature and a definite speed at which the engine should be turned. On a Lycoming engine in an eight cylinder Auburn car the tests on various cylinders made with a U. S. compression gage by turning the crank very slowly were as follows:

No. 1.....30	No. 5.....22
No. 2.....25	No. 6.....25
No. 3.....28	No. 7.....20
No. 4.....25	No. 8.....35

We have no way of knowing if our test was correct or not and whether we were turning at the right speed or not. What should the compression be on this engine which has  $3\frac{1}{2}$  in. bore and  $4\frac{1}{2}$  in. stroke with a displacement of 298 in. —H. N. Krenkel, Treasury Department, United States Public Health Service, Carville, La.

Checking the compression in various cylinders is more or less a matter of comparison. On this particular engine the compression ratio is 4.6 and when we multiply this by atmospheric pressure of 14.7 it gives a theoretical compression of about 67 lbs. In an engine which is as perfect as it can be made we will never get a test equal to the theoretical compression. One method of testing recommended is to have all the spark plugs out so that the only compression obtained is in the cylinder where the gage is connected. Then a fully charged battery should be made to operate the starter and turn the engine over. The temperature should be ordinary room temperature ranging from 70 to 75 deg. Fahrenheit.

### Variation Allowable

Under these circumstances you should get a compression of approximately 50 lbs. which allows considerable for leakage. We believe you should find that the variation is within 2 or 3 lbs. above or below the average cylinder when the test is made in this way to as to get substantially the same speed when testing each cylinder. In the table of tests which you gave the variation may have been due to variation in cranking speed or it may have been due to leakage past valves or piston rings in the cylinders which show the low reading.

### WHAT THE TROUGHS DO

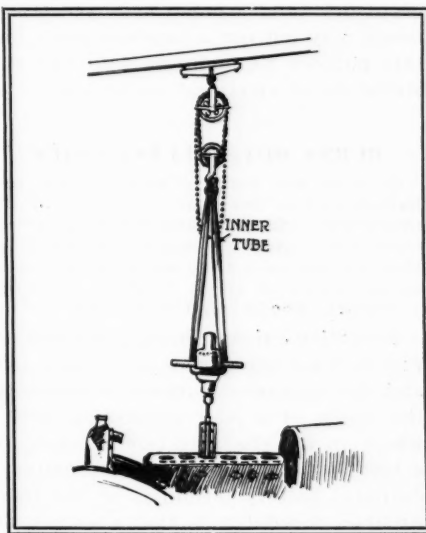
Q.—I would like to know why the Essex has four instead of two balls in the oil pump. Is it to give added weight without increasing the size? I also would like to have an explanation as to how the oil is evenly distributed to the dip troughs under the connecting rods.—C. M. C., North Dakota.

We understand that the purpose of the four balls is, as you suggested, to increase the weight without increasing

the size of the check. However, it has been proved that two balls give quite as satisfactory performance as is obtained with the four. On the wall inside of the crankcase in the Essex car, open troughs about  $\frac{3}{8}$  in. wide and approximately 4 in. long are placed at an angle so that the oil that they collect is led down into the dip troughs. The Essex pump starts the oil in circulation and the impact of the dippers on the connecting rods creates an oily vapor or mist in the crankcase which quite uniformly distributes itself around the sides of the case and as it descends it is caught in these troughs on the side of the crankcase and fed back to the dip troughs under the rod.

## SHOP KINKS IDEAS That have been Found Useful

When honing the cylinder walls I found that it is quite a job to hold the electric drill. I have accordingly made it a practice to use an old inner tube as shown in the sketch. This supports the weight of the electric drill and still has enough elasticity to make it possible to move the hone up and down in the cylinder. Another method that could be used would be to run a piece of clothes line over a pulley and have a counter-weight on the other end which is about equal to the weight of the electric drill. Either of these methods makes the job easy.—C. A. Schobel, Columbus, Tex.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

## Uneven Power Impulses May Cause the Jerk

Q.—We have a Star six Landau sedan that jumps when it runs slowly in high gear. Can you give us a complete remedy for this? Please explain if it is in the riding qualities, springs or in the engine of this car.—Melvin H. Larson, Larson Motor Co., Marinette, Wis.

The difficulty you are having is most likely due to uneven power impulses of the engine. When operating in high gear at low speed there is quite a time interval between power impulse and also the flywheel effect is considerably reduced. The result is that if the impulses are uneven the car tends to coast ahead of the engine slightly on the weaker stroke. Of course while we said that the fault was primarily in the engine, still excessive play between the engine and the rear wheels such as looseness in the universal or too much backlash between the pinion and the ring gear will increase the tendency to jerk.

In checking up on the condition of the engine we would suggest that you first try the compression of all cylinders which should be the same within three or four pounds. If there is a variation in excess of this amount the valves should be ground and while doing this the approximate fit of the piston and the condition of the cylinder walls can be determined. If the pistons are very loose or the walls scored it will of course be necessary to recondition those parts before uniform compression can be maintained. It would also be well to clean and adjust the breaker points in the ignition unit giving them a maximum opening of .020 in. The spark plugs should also be cleaned and set so that each has a gap of .025 in.

### Then Hunt Air Leaks

With excessive play eliminated in the drive shaft and rear axle, with compression uniform in all cylinders and the ignition in good condition, if jerking still continues it would be well to test the intake manifold for air leaks. To do this fill an oil can with gasoline and with the engine idling slowly go over all parts of the manifold and particularly the gaskets where the manifold connects with the cylinder block and also where it connects with the carburetor. As gasoline is poured on each part, if a leak exists, the suction in the manifold will draw the gasoline in and a decided change in engine performance will be immediately noticed. Obviously the thing to do then is to eliminate the leak for it is impossible to have correct carburetion if air leaks exist at the gaskets.



# Clearing Up Electrical Troubles

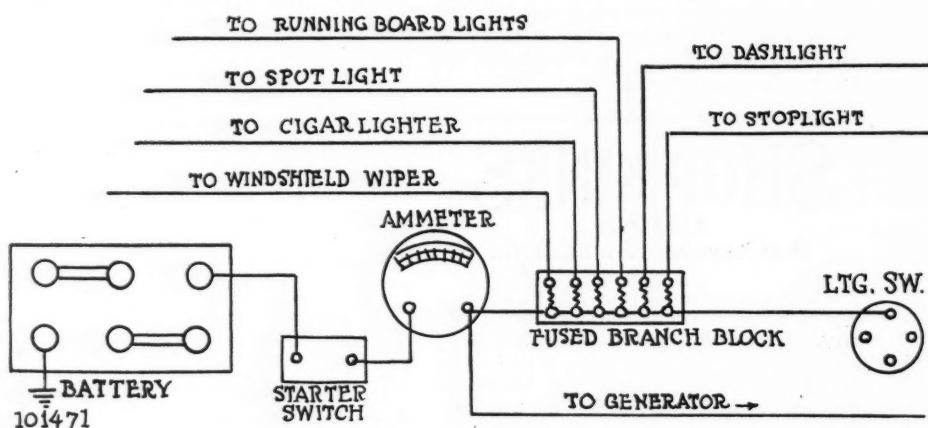
## Electrical Device Makers, How 'Bout It?

Q.—I noticed your Bill Fixit story on page 14 of the April 22, 1926, issue of MOTOR AGE and would like to offer you a suggestion which I think would be of considerable benefit to owners of passenger cars. There is a decided tendency among owners to add electrical equipment to their cars beyond that which is furnished as standard

Edited By A. H. Packer

The above is merely an outline of a construction which would be of decided benefit, first in installing extra equipment and secondly in maintaining it. You are at liberty to make such use of the suggestion as you may see fit. —A. B. Cumner, The Autocar Sales & Service Co., Ardmore, Pa.

We are publishing the sketch Mr. Cumner submitted and wish to point



Making it easy to wire up accessories

equipment. If, say three or four devices, such as cigar lighter, stop lights, parking lights, etc., are put on and are connected to one of the ammeter terminals, it results in a very bad condition of putting a number of wires on a single terminal and the liability of their getting loose.

It is my suggestion that it would be a logical thing for the manufacturer to incorporate in his electrical system a small fused branch block at the point shown in the attached sketch with sufficient number of branches to accommodate the ordinary number of extra devices which would normally be installed. If these branches are fused, trouble on any one could be easily traced or by removing the fuses could be cut out temporarily until trouble was located and not derange the whole system.

On my car I found that by putting a number of wires under one terminal that they were constantly loosening, so as a quick expedient I used a piece of strip brass about 3/8 in. wide and with a hole in one end which went over the ammeter terminal and then introduced six small screws to act as terminals and from which to take leads to the additional equipment. This has been very satisfactory, but I think it would be much better if it were fused.

out there are two possibilities. Makers of motor cars may in time come to the point of supplying such a fuse block or junction block. It is more likely however, that this will be used as an accessory and some live accessory house may put out a junction block for this purpose to facilitate sale and installation of electrical accessories.

## BURNS OUT BALLAST COILS

Q.—Can you tell me what causes the ballast coil in the ignition circuit of an Oldsmobile 1924 6 cylinder model car to burn out? This has happened twice on this car and each time when the car was being driven at about 35 miles an hour. —Willard Moody, St. Charles, Ill.

Excessive current through the ballast coil is what is causing it to burn out and the excessive current is probably the result of a poor connection somewhere in the charging circuit, such as a loose or rusty ground at the battery, corroded battery terminals or the like. Another possibility is that a couple of turns in the primary winding of the coil are shorted thus causing the coil to draw abnormally heavy current and consequently burning out the ballast. If this coil is found to draw more than three or four amperes on 6 volts we would suggest the installation of a new coil.

## Setting the Timing On a Hudson

Q.—In changing the timing on a Hudson car how does the cam block come off? I find that this ignition cam is loose but I can't get it to come off.—Sunset Garage, Elliston, Va.

The looseness that you refer to is merely the play in the automatic advance which is a part of the Bosch ignition on the Hudson car. It is perfectly correct to have considerable motion in this member, but to time the ignition it will be unnecessary to move the cam. As you will see in the cut the position of the distributor housing can be altered by loosening the clamp screw on the distributor arm. To retune the ignition put the spark advance lever in the full advance position which is at the top of the quadrant. Take out the spark plug in No. 1 cylinder and bring the piston up on its compression stroke until the pointer on the observation hole on the flywheel case is directly over the mark "A" which is stamped on the flywheel. Then remove the distributor cap and rotor and loosen the holding screw in the timing arm. Turn the housing to the left until the interrupter points just start to open and then tighten the holding screw. Replace the rotor and determine under which terminal of the distributor cap the metal segment will rest. Replace the distributor cap and connect this terminal to the plug in No. 1 cylinder. Connect the rest of the terminals to the plugs according to the firing order which is 1-5-3-6-2-4.



Easy adjustment provided here

# Clearing Up Electrical Troubles

## How to Set Distributor Gear Correctly

Q.—Explain how to set the armature gear with the large gear on a magneto when there are no marks. Do you set the interrupter in the advance or the retard position.—S. E. Archibald, 109 N. 9th Street, Olean, N. Y.

The easiest way is to put the magneto together without paying attention to the distributor gear timing, but do not put the screws in the end bracket. Now advance the interrupter by turning it against the normal direction of rotation. Then turn the armature in the normal direction until the interrupter points are just ready to open, with the fibre just touching the cam. At this instant the distributor brush should just have made a full complete contact with one of the distributor segments, but it should not have traveled very far across the segment.

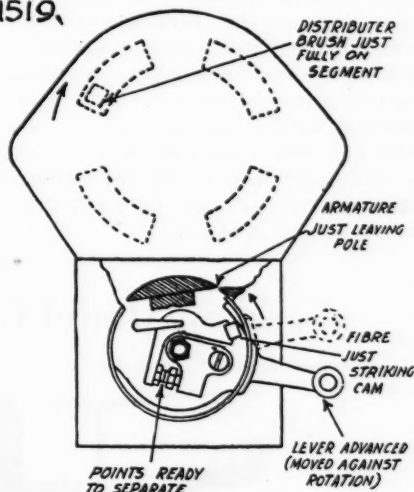
In the illustration the correct position of the brush is shown. To check this position you can remove the distributor cap and put a little speck of cup grease on the brush, then replace the cap and remove it to see where the grease spot is. If the timing is not correct you can draw the armature out of the magneto about  $\frac{1}{2}$  in. so that the gear does not mesh with the distributor gear and then turn the distributor gear and replace the armature and check again. If the brush has traveled farther along the segment than is shown in the illustration the magneto will be O. K. in the advance position but in the retard position you might find that the brush was off or half off of the segment when the points open. It is also well to check in the retard position after you think the timing is correct in the advance position, to make sure that the brush is still on the segment.

### THAT MYSTERIOUS MOUNTAIN

On page 29 of the July 22, 1926, issue of MOTOR AGE Mr. W. W. Gaskill of Roebbing, N. J., spins a hot yarn about a hill of lodestone that kills the ignition. It is possible that a high frequency magnetic field can play funny tricks with ignition, but a static magnetic field would have little or no effect on it. If a magnetic field of such strength were so near the ocean it would have been known before on account of its effect in disturbing marine navigation, by making the compass indications unreliable. This is simply a case of a long steep grade that does not look as steep as it actually is. There is a hill here in Los Angeles that is known as "Magnetic Hill." A

bucket of water poured on the road runs up hill. The car in neutral will run up hill as soon as the brakes are released, yet a check up with surveyor's instruments show a down grade of about 2 or 3 per cent in the direction that seems to be up hill. I have seen water troughs on the Tollhouse grade in the High Sierras that actually looked as if the water in one end were a couple of feet higher than the other. It is simply a case of optical illusion. The various angles of the topography are in such relation to each other that the eye makes a false deduction. You can see many puzzles based on this

101519,



Interrupter points ready to open and distributor brush just on a segment

fact, the pair of parallel lines, for example, that appear to diverge when a herringbone pattern is gone over them. I trust you will not have to make a trip to the optician after wading through this letter.—F. J. Schaifer, 1309 W. 62nd St., Los Angeles, Calif.

### GENERATOR BRUSH TENSION

Q.—Please tell me the amount of tension that the spring should exert on generator brushes and also on starting brushes. I would like to know where I can buy one of those small scales for testing this spring tension.—S. E. Archibald, 109 N. 9th St., Olean, N. Y.

You will find in general that the generator brush tension will vary between 12 and 18 oz. and that the tension of starting motor brushes will run from 12 to 28 oz. Of course this varies in different pieces of equipment according to the amount of current carried, the composition of the brush and its size. The small spring scale for testing this tension can be generally purchased in any good hardware store.

## Generator Refuses to Run as a Motor

Q.—I have a Ford generator which will not motorize. With the third brush lifted it runs as a motor but runs only in one direction. Shifting the brush holder does not have any effect on the speed, also when I drop the third brush it runs as fast as ever.—Marrowbone Garage, Marrowbone, Ky.

You should test the circuit from the third brush to ground with the third brush lifted to see that the field winding is not open. An open circuit is suggested to us from the fact that the motoring of the generator is not affected by dropping the third brush back onto the commutator. Loosening the four small screws in the end bracket of the generator enables you to move the whole rocker ring and this should give you main brush positions which would give motoring in either direction. There should also be a neutral point where the armature will not tend to rotate. This test is made with the third brush lifted and battery current applied to the ground and to the insulated terminal. The normal setting for the main brushes is where you get just a slight tendency for the armature to turn in the normal direction.

If you cannot get this adjustment it is possible that the machine contains a rewound armature which is improperly connected. In this connection would suggest your studying the Bill Fixit article which appeared in the Sept. 2, 1926, issue of MOTOR AGE, as this gives considerable information on testing armatures for wrong connection. If you have a circuit through the field winding and have an armature where the brushes are approximately on neutral you should get slow rotation in the normal direction when you put the third brush on the commutator. If dropping the third brush gives wrong rotation then you may have a reverse connected armature. This can be compensated for by reversing the field connection. To do this you ground the connection that formerly went to the third brush and you put on the third brush the field lead that was formerly grounded.

### O. K. WITH SLIGHT CHANGES

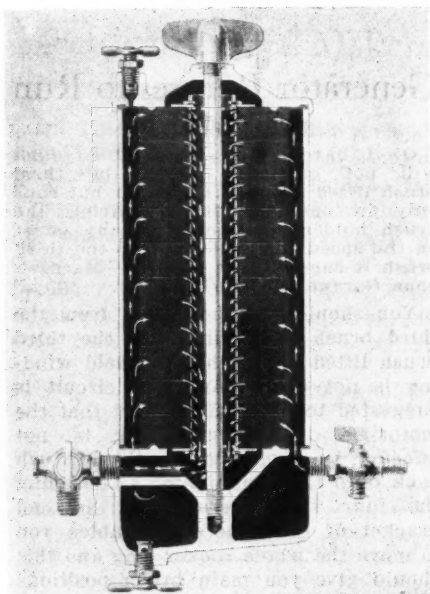
Q.—We have an Excelsior motor cycle in our shop bearing the number 98985. Will a 45 deg. Bosch magneto, type Zev No. 1511238 work on this machine? If not, why?—Bethel P. Brown, 604 N. Elm Street., Henderson, Ky.

We understand that this Excelsior motorcycle has an angle of 42 deg. Accordingly the magneto should be changed by the use of a new cam and interrupter. These parts can be obtained at any authorized American Bosch service station.



## New Pierce-Arrow Oil Filter

**A** FEATURE of the new Pierce-Arrow Series 36 Dual Valve Six is the oil filter which has been designed by Pierce-Arrow engineers.



*Sectional view of the oil filter on the new Series 36 Pierce-Arrow*

The filter consists of an aluminum shell with aluminum top and bottom covers between which is clamped the cylinder built up of felt washers cemented together. The oil enters the chamber surrounding the felts and passes through approximately 1½ in. of felt to get to the central opening from where it is returned to the crankcase. Oil enters the filter from a bypass on the oil pressure line. The flow of oil through the filter can be checked by turning the stop cock, from which the oil will trickle if the filter is operating properly.

The outstanding feature of the filter is the low replacement cost of the filter element. The element can also be easily removed and cleaned or the sludge chamber in the bottom can be cleaned with the openings provided. The filter is mounted on the right side of the dash.

### Omerod Visits U. S.

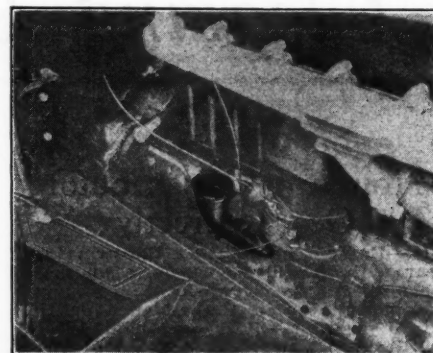
NEW YORK, Oct. 16.—H. E. Omerod, managing director of Ford Automobiles (India), Ltd., vice-president of the Western India Automobile Association and chairman of the Motor Truck Association of Western India, who is in this country in connection with the Indian Good Roads Campaign, will spend a few days in Detroit before returning to Europe.

Mr. Omerod hopes to obtain American and European co-operation in the project. Large areas of India, which do not have rail service, will afford a splendid market for motor trucks and buses when good roads are available, he indicated.

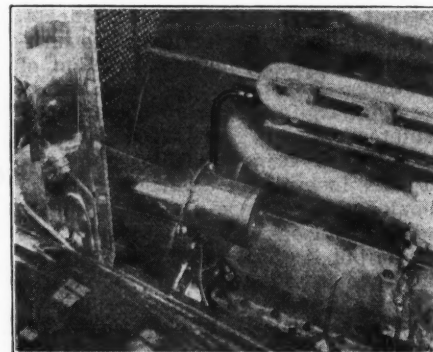
## Franklin Crankcase Ventilator

**A** CRANKCASE ventilator which is regular equipment beginning with engine No. 109938 can also be installed on earlier models of the series 11 Franklin. In authorized Franklin service stations this work is done for \$11.70, including material. The regular Franklin air cooling system is used to blow air into the crankcase and it is taken out through the conventional breather or oil filler.

The detrimental effect of water in the crankcase oil is well known and usually causes a sludge formation which seriously interferes with the engine lubrication. In the combustion of the fuel, sulphur which exists to some extent in all gasoline, combines with the hydrogen and oxygen to form dilute sulphuric-acid. This finding its way into the crankcase tends to corrode the polished bearing surfaces. A steady flow of air through the crankcase is said to take out the water and acid vapors before they condense, thus preventing contamination of the oil. This system operates with a cold engine as well as with one that is warmed up and is said to not only prevent the formation of water in the oil but to remove any which may be in the oil.



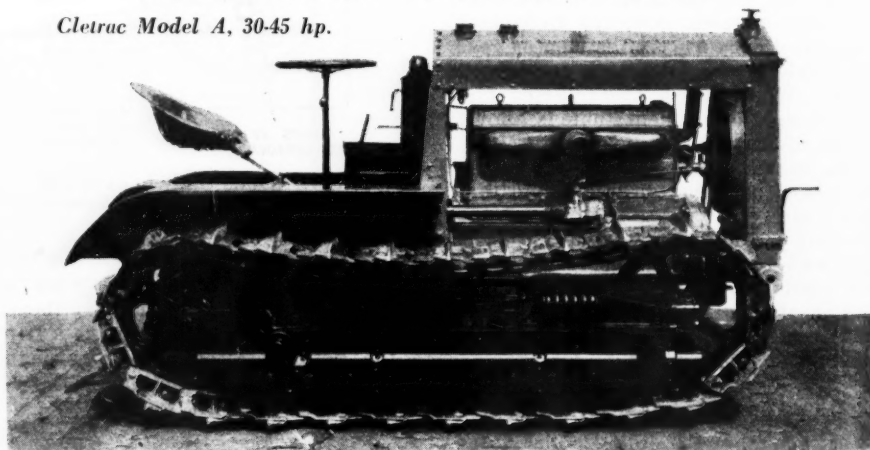
*The regular oil filler acts as the ventilator outlet*



*Franklin crankcase ventilator intake*

## New Model Crawler Tractor

*Cletrac Model A, 30-45 hp.*



**W**ITH the addition to its line of the new model A, 30-45 hp., six-cylinder Cletrac, the Cleveland Tractor Co. is now able to offer a crawler type of tractor for every farm and industrial purpose. Advance announcements of the machine's new features have created a wide interest.

The A is designed to handle the heavier jobs with speed, efficiency and low cost of operation. It has a greater draw bar pull and with a total tractive surface of 1,800 square inches on the ground it is claimed that the tractor will travel without slippage over soft and wet spots, ice, snow and mud.

All parts have been designed for adjustments and replacements on the field

with the minimum of time and effort. Lubrication is now accomplished by one push of a plunger and there are but four grease cups on the entire machine. Driving parts are protected by dust-proof construction throughout.

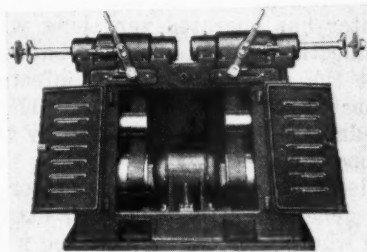
Steering is accomplished through a compensating differential, using the power of the motor. The inside track is slowed down and the outside track speeded thus doing away with stoppage of tracks and minimizing power waste. The pull is maintained on the turns. The patented steering device, an exclusive feature, makes the machine as easy to handle as a passenger automobile, its designers claim.



# NEW HELPS for SHOPMEN

## New Selective Speed Buffer

Ability to stop either spindle independently of the other by means of belt shifters in the rear of the spindles is one of the features of the new Hisey Selective Speed Buffer, a product of the Hisey-Wolf Machine Co., Cincinnati, O. An adjustable brake which works in



Rear view of Hisey buffer with doors open for access to interior

unison with the shifter comes into automatic action when the belt is shifted on a loose pulley, thereby holding the spindle stationary until the belt is again shifted. Adjusting levers are provided for regulating the belt tension. A hinged platform, equipped with screw adjustment, on which the machine is mounted, provides for further adjustment. Convenient access to the working parts is obtained by opening two large rear doors. Oversized ball bearings are used throughout. As with other Hisey products Full Safety Automatic Motor Starter with push button control is standard equipment. Spindle speed as listed are recommended for average work by the makers but other speeds of 2400, 2600 and 3000 r.p.m. can be furnished. Also spindles can be provided with a different speed on either end. The machine is made in three sizes with 7½, 10 and 15 hp. motors.

## Model T Time Recorder

Simplex Time Recorder Co., Gardner, Mass., offers a unit in its Model T. Universal recorder which is especially adapted for use in garages, machine shops, etc. While the recorder sells for only \$90 it includes the same type of movement used in the company's machines selling for from \$225 to \$250. This recorder, which makes a clear printed time record, will run without winding for two weeks although weekly winding is recommended. It may be used for both payroll and cost keeping purposes, the employee not only registering upon arrival and leaving the shop but upon starting and completing a job. Costs of new parts used also may go into the record.

## Mayo Tow Pole

Exceptional strength and convenience are qualities in the Mayo Tow-Pole recommended by the producers' David

Lupton's Sons Co., Allegheny Ave. and Tulip St., Philadelphia. The pole is built in one piece which is declared to make for ruggedness and prevent the loss of parts. Flexibility in traffic is provided for through double ball and socket joints at both ends of the pole. The Mayo pole is quickly attached. Jaws at both ends clamp securely to the car at any convenient place. This grip is made more fixed by a chain passing through two forks in the jaw and around the axle, bumper or other convenient part of the towed car.

## C and E Safety Handles

The Ericson Mfg. Co., 1987 East 105th St., Cleveland, O., has placed on the market a line of flexible rubber safety handles which are designed to reinforce the connection between the portable electric cords and plugs or sockets, protect the cord and plug from injury and safeguard the user in the event of a connection being broken. They are designed especially for garage service and in a variety of styles for practically all types of portable light sockets. The manufacturer states that they have been approved by the Underwriters Laboratories as well as the Associated Mutual Fire Insurance Companies.



C and E safety handle



LABOR									
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## Running Down Generator Trouble

(Continued from page 20)

peres) or a very heavy current (meter needle off the scale).

"No current might indicate an open circuit either before or after the cutout and in this case it would pay to take a piece of wire and flash test from the frame to the battery terminal of the cutout to see if this terminal is live. Then with the points closed it would pay to flash at the generator terminal to see if current is getting that far.

"If a slight current is flowing it usually indicates field current and an open armature or a main brush not touching or a commutator from which the solder has been thrown. If the current is in the vicinity of 15 or 20 amperes it shows the generator circuits approximately normal and the next thing to do is to start up the engine, still holding the cutout points closed or shorted. A sliver of wood or piece of a match can often be used to block the points closed.

### Reading the Symptoms

"With the engine started and speeded up the ammeter discharge reading may stay as it is or come up to zero or come up still farther and show a charge reading. If the ammeter reading is unchanged with engine running it indicates an open field circuit or third brush not touching commutator. If the needle shows about zero it usually indicates a grounded or shorted armature, while charging properly shows the generator nearly normal but incapable of building up by itself.

## How Fleetruck Gets Two High Speeds

(Continued from page 21)

square with the driven shaft of the transmission by two roller bearings. On the outer end of this sleeve, there is an external gear G which drives the countershaft and also serves as the male member of a gear type clutch. Only every third tooth of this gear is of full face width, the intervening two being backed off 7/64 in. The female clutch member consists of an internal gear H on the forward end of a third sleeve J which is slidably mounted on the transmission main shaft by means of an internal-external gear arrangement as shown at K. Near the rear end of the driven shaft just forward of its pilot bearing, there is an external gear L. It will be noticed that in the neutral position shown, the teeth of the internal clutch gear lie between the gears G and L.

The internal clutch gear has only every third tooth, the intervening two teeth being broached out as shown in the transverse section of the transmission at M. This construction together with the backing off of the teeth on the gear G assures positive action of the clutch regardless of relative speeds as there is a possible movement of about 40 deg. before engagement.

For third speed, the slidably mounted sleeve J is shifted forward so that gear G and H are in mesh. The drive is from the pinion A through the internal gear at B to the sleeve C; thence through the internal gearing at D to the sleeve F. From this sleeve, torque

is transmitted by the clutch to the mainshaft. In fourth speed, the sleeve J is shifted backward bringing gears H and L into mesh and positively coupling the driven and mainshafts of the transmission for direct drive.

The sliding vane oil pump is shown at the forward end of the transmission. It delivers lubricant to the inside of the sleeve C insuring proper oiling of the internal gearing and giving quiet and efficient operation.

The various positions of the shifting lever are shown in the accompanying sketch. It will be noted that reverse position is the same as for fourth speed, excepting that the lever must be moved further to the right in the neutral slot before pushing forward to engage the gears. Accidental engagement of reverse is guarded against by a latch operated by a downward pressure on the shifter lever.

The transmission also simplifies the problem of rear axle design as smaller reduction ratios are possible thus permitting the use of a larger pinion without increasing the overall diameter of the ring gear and axle housing.

### Sell for Cash Only

BURNETT, Tex., Oct. 16.—There are five garages and filling stations here and they have entered into an agreement to sell for cash only.

In order to acquaint customers with the new plan the garagemen and filling station proprietors notified them through the press that there would be no more credit business.

The notice in the papers said: "Nothing charged—We the undersigned ga-

"Failure to build up may be due to oil soaked brushes or brushes making poor contact or stuck in the holders. It may be due to poor connections between the field coils or to poor connections at the armature commutator connections where the armature coils are soldered in place.

"Another possibility where the generator is normal when the cutout points are closed by hand is that the cutout shunt winding is open or the adjustment too stiff. One easy way to check is to try another cutout. Another way is to take generator voltage from the terminal to ground to see whether it builds up or not. This may save several hours some time taking off a generator which has nothing the matter with it. However, if a good generator has operated very long with a cutout that is not connecting the generator to battery, there is a chance that the generator will be affected, for operating disconnected will cause it to overheat and the extent of the damage is measured only by the length of time it has operated that way.

"When there really is trouble inside the generator it necessitates taking the generator off, the possible exception being bad brushes where they can be changed with machine still on the car. The value of running down the trouble before actual work is done can not be overestimated. In the first place it gives the repairman confidence in talking with his customer and in the second place it enables him to judge more accurately the time and material that will be needed so that he can make his cost estimate more accurately if an estimate is asked for, or can pick the right flat rate operations if working on this basis."

rages and filling station proprietors, do hereby agree to go on a strictly cash basis. This means that we have thrown away our books and positively nothing will be charged under any circumstances."

The garagemen and filling station men of the city declare they are doing just as much business on the cash basis as they did when they "charged it."

### 600 At Sales Meeting

NEW YORK, Oct. 16.—William B. Burruss, merchandising expert, addressed the first of a series of three sales convention meetings held at the Hotel Astor by the Automobile Merchants Association of New York, Inc., under the auspices of the National Automobile Dealers Association. His subject was "Shakespeare the Salesman." More than 600 attended the meeting.

Two other meetings will be held before the National Automobile Show, the object being to prepare the salesmen to take advantage of the opportunities afforded for increased business during and after the show.

### Gabriel Distributors Meet

CLEVELAND, Oct. 16.—Distributors of the Gabriel Snubber Co. held their annual convention here this week. Sessions were held at the home of Claude Foster, president of the company, and at the Willowick club. The distributor organization was recently increased by the addition of representatives in several more districts. Under the distributors there are 3,200 dealers.



# EDITORIAL

## Accessories to Sell

—The Radiator Shutter—

IN the coldest weather many automobiles run around powerfully fanning air through the radiator just as they would in midsummer. It is a most wasteful and thoughtless act. Heat is necessary to the efficient and satisfactory operation of the automobile engine. And the best operating temperature is much higher than atmospheric temperature even in the hottest weather.

Combustion within the cylinders soon brings the engine up to efficient temperature and would overheat if it were not for the cooling system. The danger of overheating is greater in summer than in winter because the warm air does not carry the heat away as rapidly as does the cold air of winter.

Most automobiles will run hot enough in winter after they are once heated up, but the heating up takes a long time while gasoline is being wasted and probably damage done to the bearings because of poor circulation of cold oil. With the fan driving cold air through the radiator and across the engine the warming up is delayed. A shutter to close the air passages through the radiator reduces the time required for warming up. And if the shutter is closed when the engine is stopped the engine will be kept warm much longer.

A good radiator shutter is a device that quickly pays for itself in the saving of fuel and oil and wear and tear on the engine. There are good makes on the market that can be quickly and easily installed and that add to the appearance of the car. The radiator shutter need not be taken off in summer, as even then it is helpful in quickly warming up the engine. With blades opened it permits free circulation of air.

The automotive dealer or garage man does not deserve the name MERCHANT unless he is right now pushing the sale of radiator shutters and profiting thereby.

*All good roads lead to bigger automobile profits.*

## Price Revisions and Used Cars

A NUMBER of price reductions in the automobile field in recent weeks are worthy of the dealer's notice. Overland found it possible to list its cars lower. Studebaker, with increased production of the new custom models announced substantial reductions in the broughams. Chrysler, announcing a new "70" model, made the prices somewhat lower on the higher priced enclosed models, but discontinued the lower priced enclosed cars. Now comes Hudson-Essex with a \$100 reduction applying to all enclosed models made by that company.

These price reductions should not be taken as an indication of a general wave of price cutting. It is entirely possible that other reductions will be made before the winter is over and such if made no doubt

will help to maintain the volume of production and sales at a time when there is a noticeable tendency for them to slacken.

It is the used car in the dealer's hands that is most likely to be affected by any tendency toward lower prices for new cars. This makes it imperative for dealers to buy used cars at low prices and move them quickly. Used car prices are low enough now that the entire present market value of any vehicle in the medium price class might be entirely wiped out by storage cost and depreciation if held until spring.

It is moving time for used cars.

*A dealer can't tell where he stands unless he knows how each department stands.*

## Two Cars to the Family

WHEN MOTOR AGE more than a year ago published articles calling the attention of automobile dealers to the rapidly developing field for the sale of a second or third car in many families it was a pioneer in that form of sales promotion. Since then we have heard the argument advanced from platform and through the trade press by leading executives of automobile manufacturing companies.

Mr. Edward S. Jordan of the company bearing his name and Mr. Harry G. Moock of the Hudson Motor Car Co., have very logically and effectively presented the argument to thousands of automobile dealers. Says Mr. Jordan:

"Fifteen years ago if a person built a garage it was a one car affair. That was the extent of the ambition of the average man. Those were the days when the manufacturers sold big five and seven passenger touring cars so the whole family and a few friends could drive proudly down the avenue on Sunday afternoon.

"Now look at the picture. Nobody builds a house today without adding at least a two car garage, while many people provide accommodations for three, four or even more cars.

"Country clubs and public golf courses are so numerous that every one who wants to can play and the automobiles are parked there by the thousands. Of course, that means at least two cars to a family. Father has to have one in his business and there simply must be one at home for the family. We are living in a motorized age and the idea is spreading.

"The big market of the future in this country is the American family. Every member of the household who goes anywhere will have his own individual transportation and be independent of the other fellow. More small cars will be sold, more roadster, more small enclosed models."

Mr. Dealer, there's a day's lesson in your own course in merchandising.



# URBAN AND MANUFACTURING

## Liveliest Regional Mart Just Now in the North

### Current Slackening of General Sales Seems Only Seasonal Turn of Tide

NEW YORK, Oct. 19.—Smaller orders for steel and for equipment units that go into automobiles forecast further curtailment of manufacturing operations, but there are no signs of a serious slump. The extraordinarily high rate of output in August and September was not expected to continue for long, and the current slackening in sales does not appear to be anything more than the seasonal turn in the market.

Irregularity of sales trends is noted, with the urban and manufacturing centers buying much more freely than the agricultural districts, and with the northern states much more active than the southern.

A lull in presentations of new models is giving manufacturers the opportunity to press policies involving relations with their dealers, including the expansion of parts sales and the establishment of used car plans designed to eliminate losses in this part of the business.

Dealer losses in the past have been due mainly to unsound used car operations and insufficient profitable service business. Both these sources of weakness on the retail end are now under concerted attack.

Another cut in prices has evidently caused widespread belief that the trend is definitely downward, but at the factories no such theory is held. In a few instances manufacturing costs and other considerations may permit a lowering in lists, but on the whole the industry appears to regard the present level as likely to endure. A serious decline in business might even lead to higher prices, as the margin of profit for most of the factories is so moderate a high level of operation is required.

Dealers' stocks have increased slightly, but by no means to an unsound extent.

#### Morse Chain Expanding

DETROIT, Oct. 16.—Extensive factory additions by the Morse Chain Co. are announced by F. C. Thompson, Detroit manager. At the Ithaca plant the company is putting up a five-story building, providing 123,000 additional square feet for manufacture of Morris Silent front end chains. The capacity of the Detroit plant which manufactures sprockets will be doubled by the addition of a new two-story building. This structure will house the offices, engineering

department, tool room and experimental laboratories. All space in the present Detroit plant will be utilized in manufacturing, increasing the present facilities 100 per cent. The expansions are demanded by increased business.

#### New Studebaker Victoria

DETROIT, Oct. 18.—Another special model known as the Big Six Custom Victoria listing at \$1735 and mounted on the 122 inch wheelbase chassis is introduced this week by the Studebaker Corp. of America. The interior is of the four passenger type embodying a folding seat for the front passenger and a bucket type seat for the driver. Upholstery is in chase mohair with broad-lace trim, while the exterior is finished in Croatan green with an ebony belt. The line of equipment featuring the previous custom line of cars is embodied in the new Victoria.

#### Buy Premier Motors, Inc.

INDIANAPOLIS, Oct. 16.—Premier Motors, Inc., which formerly manufactured "Premier" taxicabs, has been bought out by the National Cab & Truck Company, which is now manufacturing these taxicabs under the Premier name and in addition manufacturing "National" trucks. The former Premier Model D-4 taxicab that was manufactured by Premier Motors for the Majestic Cab Company is now being manufactured by the Larrabee-Deyo Motor Truck Company of Binghamton, New York.

#### Burd Promotes White

ROCKFORD, Ill., Oct. 16.—The Burd High Compression Ring Company announces the promotion of Frank M. White from the position of sales manager to general manager. Mr. White also has been made a member of the board of directors.

#### Priced at \$1195

ST. LOUIS, Mo., Oct. 16.—The Moon Motor Car Co. announces that the list price of its new Six-Sixty Cabriolet Roadster is \$1195.

#### Reduce Hudson-Essex Prices

DETROIT, Oct. 15.—All Hudson and Essex models have been reduced in price \$100 effective today, it is announced by the Hudson Motor Car Co. With this reduction a new model known as the Hudson Coach Special is introduced which lists at \$1150 or \$55 more than the standard coach. Bullet type headlights and new upholstery and trim are special features of the new model.

The new prices, f. o. b., Detroit, for the entire line are Essex coach, \$695; Hudson coach, \$1095; Hudson Coach Special, \$1150; Hudson Brougham, \$1395; and Hudson 7 passenger Sedan, \$1495.

#### Three New Franklin Bodies

SYRACUSE, N. Y., Oct. 16.—Three new custom designs, a tandem sport, a semi-collapsible top coupe and a Victoria coupe with covered rear deck are announced by the Franklin Automobile Co. These models were exhibited for the first time at the new show room which occupies 500 sq. ft. of space on the ground floor of the company's general office building.

#### AC Strainers on Buick

FLINT, Mich., Oct. 15.—Announcement has been made that starting October 1 all Buick cars are equipped with the new AC Gasoline Strainer.

#### September Output Estimate

NEW YORK, Oct. 16.—September production of cars and trucks in the United States and Canada approximated 410,000, according to estimates now available. This compares with 439,653 in August, a decline of slightly over 3 per cent and with 334,709 in September, 1925, a gain of 22 per cent.

The total for the first three-quarters of 1926 is brought to about 3,670,097 vehicles, against 3,184,129 in the corresponding period of a year ago, a gain of 15 per cent.

September car output is estimated at 364,900 and truck production at 45,100.

## Price Changes and New Models in MOTOR AGE Oct. 21st Issue

Make	Model	Body Style	Old Price	New Price
Chrysler	60	Coupe	\$1165	\$1125
		Coach	1195	1145
		Sedan	1295	1245
Hupmobile	A	Roadster	New Model	1385
Hupmobile	E	Victoria	New Model	2345
Jordan	J	Custom Victoria	\$2190	2195
		Custom Sedan	2190	2195
Pierce Arrow	80	7-p Coach	3350	3250
*Velie	60	DeLuxe Sedan	2150	2050

\*This is a correction from the previously announced price.

# CENTERS BUYING MOST CARS

## Ballenger Leaves Chevrolet

FLINT, Oct. 16.—William S. Ballenger, treasurer of the Chevrolet Motor Co., resigned his position before leaving on a trip around the world with Mrs. Ballenger, some months ago, it was made known, today. The announcement was issued following his return to Flint. Mr. Ballenger was dean of local automotive executives.

His history in the industry really dates back to 1888 when he came to Flint from Cambridge City, Ind., to become a bookkeeper for the Flint Wagon Works.

When the Chevrolet Motor Co. was organized it took over the plant of the Flint Wagon Works and Mr. Ballenger became treasurer of the new company.

Besides his activity in the automotive industry, Mr. Ballenger has also been interested in other lines of business. He is a director of the Citizens Commercial and Savings Bank and the Flint Savings Association.

## G. M. Sales Increase

NEW YORK, Oct. 18.—General Motors Corp. sales to dealers in September were 138,360, which compares with 134,231 in August and with 83,018 in September last year. Sales at retail in September were 118,224 as against 122,305 in August. Retail sales in September, 1925, were 83,519. For the nine months ended September 30 sales to dealers totaled 996,321 compared with 612,047 in 1925, an increase of 63 per cent. For the same period retail sales by dealers to users were 962,295 compared with 624,389 in 1925, an increase of 54 per cent.

## Would End Receivership

DETROIT, Oct. 16.—A hearing will be held in federal court, Oct. 25, to determine whether the Murray Body Corp. shall be sold, thereby terminating the receivership.

A petition was filed in the United States District Court by the reorganization committee, asking the court to order the sale of the corporation in its entirety so the receivership might be ended. The court referred the petition to William S. Sayres, master in chancery, who heard the plea of the petitioners and reported to the court that it had merit. Anyone objecting to the sale will have an opportunity to come into court at the hearing, Oct. 25. The reorganization committee represents 90 per cent of the security holders and 95 per cent of the creditors.

## Occupy New Gear Plant

DENVER, Colo., Oct. 16.—The Colorado Gear Manufacturing Corporation has moved into its new factory and office building at 1361-71 So. Broadway. This building is 75 by 125 feet, with an ell 40 by 60, and is thoroughly equipped and planned.

## To Build Diesel Plant

NEW YORK, Oct. 16.—Construction of a new plant at Franklin, Ill., by the Chicago Pneumatic Tool Co., to cost \$500,000, for the manufacture of Diesel engines is said to have been decided upon. Charles M. Schwab, a director of the company; H. A. Jackson, president, and W. H. Callan, vice-president, recently visited the site.

## Keys Leaves Gabriel

DETROIT, Oct. 16.—W. C. Keys has severed connections with the Gabriel Snubber Mfg. Co., which he has represented in Detroit for the past four and one-half years. He will continue his engineering work in automobile riding comfort in which he has specialized for the past 14 years, with headquarters at 700 Gladstone Avenue, Detroit.

## In Charge of Cadillac's Service Department



Nicholas Dreystadt

Appointment of Nicholas Dreystadt as general manager of the service department of the Cadillac Motor Car Co. has been announced by H. M. Stephens, general sales manager. Previous to the appointment, Mr. Dreystadt was service manager of the Chicago Cadillac branch.

Enlargement and improvement of the Cadillac service department by the establishment of many new service stations, raising the standard of service throughout the country, and improvement in the distribution of parts was also announced by Mr. Stephens. Mr. Dreystadt has been with the Cadillac organization in Chicago since 1916.

## Car and Tire Plants Make Employment Gains

## Labor Department Finds "Full Forces" Generally in Automotive Industry

WASHINGTON, Oct. 16.—The automobile and tire industries are enjoying a high degree of prosperity, according to employment statistics and survey for September just announced by the U. S. Department of Labor. Analysis of the employment situation shows that these two industries have a considerable increased employment roll at the present time, compared with the volume maintained during the month of August.

Comparing the automobile industry with other industries the department finds that it, with the iron and steel mills, are operating with full forces in almost every instance. "Automobile factories generally are running to capacity, with full forces employed, and in a few localities a shortage of skilled automobile workers is reported," the survey states.

Following are telegraphed reports on the industry from the principal automotive manufacturing and rubber centers:

Detroit: General employment conditions satisfactory. Most automobile plants working full time, none, however, overtime.

Grand Rapids: Automobile spring and bumper plants operating overtime.

Flint: Automobile factories calling for tool makers, tool designers and skilled tool workers. All plants and accessory plants operating overtime and expect to continue this basis indefinitely.

Lansing: A motor wheel corporation plant working overtime.

Jackson: Some departments in automobile accessory factories are operating only 40 hours per week.

Racine: Shortage of automobile tool makers.

Ohio (General): Automobile industry is in a very satisfactory condition. Rubber factories are practically all operating with full forces.

Akron: During the past three weeks nearly every major rubber company of the Akron district announced increased production.

Indiana (General): Automobile factories in almost all instances are running at capacity.

New York (Central): In the automobile and rubber factories labor is well employed. State, municipal and county road construction absorbing much common labor in highway construction.



## Harry H. Bassett Dies While on Trip Abroad

**Head of Buick and General Motors Vice-President Succumbs in Paris**

DETROIT, Oct. 18.—Harry H. Bassett, president and general manager of the Buick Motor Co., and vice-president of General Motors Corp., who died in Paris Sunday of pneumonia at the age of 51, was one of the outstanding executives in the automotive industry. Born on farm near Utica, N. Y., Sept. 11, 1875, a son of William L. and Mary Babcock Bassett, he was educated in public schools of Utica and Ilion and after graduation from Ilion high school at the age of 16 took a position with the Remington Arms Company as office boy. He remained with this company 14½ years, becoming assistant general manager. In 1907 he became assistant superintendent of the Weston-Mott Company of Utica, manufacturers of automobile axles.

When this company built its plant in Flint he served in the same capacity at both Utica and Flint and when the company transferred all manufacturing activities to Flint he became works manager and assistant general manager, a position he held until 1913 when he was made general manager.

In 1916 he was elected vice-president. When Weston-Mott Company combined with Buick in 1916 he was made assistant general manager of the Buick Motor Co., and in April, 1919, was promoted to general manager. On May 1, 1919, he was elected director and vice-president of the General Motors Corp., and in January, 1920, he was elected president of the Buick company.

Through his years of training as a production executive he was admirably suited for his responsible position. He had an exceptional understanding of men and his office was ever open to his employees. He spent much of his time in the shops familiarizing himself with his organization and maintained a speaking acquaintance with thousands of his workers. During the past few years he devoted much time and study to problems of his workers and was largely responsible for establishment of the General Motors College at Flint which is now being built. When General Motors gave one hundred acres of improved parks including a golf course and community building to the city of Flint, two years ago, the city named one of the playgrounds "Bassett Park" in his honor.

Mr. Bassett devoted much time to civic affairs. Besides connection with Buick, he was a director of the Genesee County Savings Bank and Workman's Mutual Bank of Flint. He was a member of the Flint Country Club, Detroit Athletic Club, Question Club and So-

### *Loses Fight With Illness*



Harry H. Bassett, Buick president and General Motors vice-president, who died in Paris

ciety of Automotive Engineers. Mr. Bassett was twice married. His first wife, Nina Cole, died August 17, 1911. On October 30, 1913, he married Jessie M. Hood of Jackson, Mich. They have two children, Harry Wood and William L. Bassett. He also is survived by two sisters, Mrs. F. P. Mann and Mrs. E. R. Kapp, both of Flint, and his mother who is 86 years old. His father died in 1914.

### **Hartz Wins at Salem**

SALEM, N. H., Oct. 15.—Driving at a speed averaging 123 miles an hour Harry Hartz took first in Tuesday's 200-mile race on the Rockingham board course. He completed the distance in one hour, 37 minutes and 21.25 seconds. Two laps behind Hartz was Peter Kreis who finished second while slightly behind Kreis, Leon Duray finished in third place.

Hartz took the lead from the pole position for the first 100 miles when Frank Lockhart pushed ahead of him, Lockhart holding this advantage and having a lap to the good on Hartz until the 145th lap, when Lockhart was forced to go to the pits. At this time Lockhart had only 15 laps to go.

Bennett Hill created a sensation in a preliminary 25-mile sprint with an average speed of 130.57 m.p.h., declared to be a new record for that distance with a 90½ cubic inch mount, but in a second 25-mile sprint Duray shaved the time made by Hill.

### **A. E. A. Meeting for Canada**

CHICAGO, Oct. 18.—Three merchandising meetings will be held in Canada in the latter part of this month by the Automotive Equipment Association. The places and dates are: Toronto, Oct. 25; Montreal, Oct. 26; Ottawa, Oct. 27.

## Complete Arrangements For Credit Conference

**Important M. & A. Meeting to Be Held in Cleveland, O., October 20**

NEW YORK, Oct. 16.—Final arrangements have been made and speakers have accepted invitations to address the credit conference of the Motor & Accessory Manufacturers Association to be held in Cleveland, October 20, 21 and 22, local headquarters of the M. & A. M. A. has announced.

On Wednesday, October 20, meetings of Groups C and E and the ABCD Association will be held. On Thursday, October 21, a general credit conference and dinner, open to members generally and also to their guests, will be held.

All sessions during the three-day conference will be held in the Hotel Statler. Arrangements have been made so visitors may play golf at any of the several Cleveland clubs on Thursday. Thursday evening a dinner will be served, following which the main address will be made by Allard Smith, vice-president of the Union Trust Co. of Cleveland. He will talk on business conditions and the outlook particularly for the automotive industry.

On Friday, October 22, meetings will be held by Groups A, B, W and RP.

The Wednesday and Friday sessions are the regular monthly meetings of the credit groups of the Cleveland area.

### **Indiana Sales Decline**

INDIANAPOLIS, Oct. 16.—New car sales in Indiana for September took a drop of 10.5 per cent under the August figure, according to an analysis of tabulations prepared by the Indianapolis Auto Trade Association. The September total was 3052 as against 3472 for the month preceding. The downward curve has continued since the end of June. Ford registrations for September dropped 12 per cent under August, the Ford figure 3052 representing 38 per cent of the total compared with 37 per cent in August and 43 per cent in July. Gains were made by two of the low priced lines with the month's feature being in moderate gains by a number of high priced lines and two medium priced lines. These increases, however were not sufficient in number to offset the other losses.

### **Fred E. Skeetop Dies**

BOSTON, Oct. 16.—Fred E. Skeetop, manager of the New England branch of the Paige-Detroit Motor Car Company, with headquarters in Boston, died today at the Battle Creek, Mich., Sanitarium. Mr. Skeetop was born at Brockton, Mass., about 40 years ago. He was married several years ago, but his first wife died. He married again and is survived by his widow and a son.



## Chicago Jobbers Prepare for A. E. A. Show



**Chicago A. E. A. Jobbers—**

*Sitting, from left to right: E. J. McKee of the Automobile Supply Co., H. M. Behan of Chicago Auto Equipment Co., F. J. Novak of Universal Automotive Supply Co., and B. H. Hargraves of Electric Appliance Co.*

*Standing, from left to right: L. J. Fielding of Sheridan Auto Supply Co., W. M. Weber of Chicago Automobile Supply House, W. H. Cragie of E. D. Kimball Co., and H. V. Jones of Sheridan Auto Supply Co.*

*The Motor Car Supply Co. is also a member of the A. E. A. but their representatives missed the picture.*

CHICAGO, Oct. 16.—Representatives of Chicago jobbers who are members of the Automotive Equipment Association met this week to make plans for entertaining dealers who attend the coming A. E. A. show on dealers' night and the merchandising meeting the evening of Nov. 9. These jobbers will constitute themselves a reception committee to serve with any others who desire to do so to greet the dealer guests.

### Business Conditions

Department of Commerce Gives View of Current Situation

Check payments during the first week of October showed a further increase and were larger than a year ago, according to the weekly statement of the Department of Commerce. The distribution of merchandise, as seen from car loadings, was at another high point at the end of September, exceeding any week of 1925. The production of bituminous coal continued its progressive increase and exceeded the same week of last year, while bee-hive coke output declined, both from the previous week and a year ago. Lumber output also declined from both these periods.

Wholesale prices declined still further during the first week of October, with cotton showing particular weakness. The loans and discounts of the Federal reserve member banks again rose to a new high record. Interest rates on time money remained the same as in the previous week, while the call-money rate declined, both rates, however, being higher than a year ago. Stock prices declined from the high mark of the previous week, but were higher than the corresponding week of 1925. Bond prices were also higher than a year ago and showed almost no

change from the previous week. Business failures were higher than during the previous week and also exceeded the same week of 1925.

#### Stiles Joins Edelmenn

CHICAGO, Oct. 16.—Jack Stiles has resigned as field representative of the Automotive Equipment Association and has been appointed sales manager of E. Edelmenn & Co., of Chicago, manufacturers of automotive accessories.

#### A. L. A. Meets Nov. 4

CHICAGO, Oct. 16.—The annual meeting of the Automotive Lighting Association will be held in Chicago at the Drake Hotel, Thursday, Nov. 4, at 10 A. M. This announcement is made by W. S. Murtfeldt of Cleveland, secretary of the association.

#### Buy \$200,000 Building

ROCHESTER, N. Y., Oct. 16.—The East Avenue Tire Company, distributor of Federal Tires in this territory, has purchased the building it now occupies at 239 East Avenue. The price paid was \$200,000. The building was purchased so that the company could expand its service facilities. The service station in the rear will be enlarged and in addition to other features a battery service will be installed.

## Equipment Mart Has Twelve New Exhibits

### Expect Many Jobbers to Visit Chicago Display in Next Few Weeks

CHICAGO, Oct. 18.—Following the adoption of the new policy opening the Automotive Equipment Mart, maintained in Chicago by the Automotive Manufacturers' Association, to all reputable manufacturers whether members of the association or not, 12 new exhibits have been installed.

It is also announced by W. E. Green, secretary of the association and manager of the mart, that the exhibition is being enlarged and prepared for the inspection of the many jobbers who are expected to visit it within the next few weeks. Mr. Green states that already 125 jobbers have signified their intention of visiting the mart. The new policy, he said, has proved very satisfactory.

The new exhibitors are:

National Machine & Tool Co., Jackson, Mich.  
Ero Mfg. Co., Chicago.  
Lock-Tite Patch Co., Detroit.  
Aurora Equipment Co., Aurora, Ill.  
Semaphoric Indicator Sales Co., Chicago.  
The Catalog Association, Chicago.  
Auto Specialties Mfg. Co., St. Joseph, Mich.  
Hide Leather & Belting Co., Indianapolis.  
Felt Products Mfg. Co., Chicago.  
Dexter Rubber Co., Goshen, N. Y.  
Universal Spring Co., Grand Rapids, Mich.  
Quincy Compressor Co., Quincy, Ill.

#### Eldridge Record Falls

PARIS, Oct. 1.—(By Mail)—World's speed records for distances of 50 kilometers 50 miles, 5 miles and 10 kilometers, have been captured from Eldridge driving a straight eight 91½ Miller by the Frenchman Breton handling sleeve valve Panhard Levassor cars.

Breton used a straight eight 483 inch Panhard & Levassor, his time being 14 min. 29.69 sec. (128.6 miles an hour) for 50 kilometers, compared with 14 min. 46.94 sec. for the Miller, and for the 50 mile run 23 min. 8.26 sec. (129.6 miles) compared with 23 min. 22.89 sec. for Eldridge. The fastest lap on the concrete track was at 133.2 miles.

#### Show Yields Prospects

SALT LAKE CITY, Utah, Oct. 14.—Twelve firms were represented at the annual automobile show held in the Coliseum at the Utah State Fair, just closed after an eight-day run. Most of them are located in Salt Lake City. Some sales were reported, and most of the dealers and distributors said excellent prospects were obtained. The attendance was not quite so good as last year's. Admission to the automobile exhibit was free.

## Wider Plan of Activity For A.E.A. Is Suggested

### Committee Gives General Outline of Enlarged Pro- gram It Proposes

CHICAGO, Oct. 15.—The useful field of activity of the Automotive Equipment Association from now on as visioned by the special committee on market development lies in the direction of merchandising and selling development rather than in judicial activities.

This point is brought out in a report made by the Market Development Committee outlining in a general way how the committee believes this work should be carried on and stating that a complete recommendation will be reported to the annual convention of the A. E. A. in Chicago, Nov. 8 to 13. The committee's conception of the enlarged merchandising activity of the future is defined as follows:

"To successfully and adequately handle the work it is the opinion of your committee that it will be necessary to develop a special merchandising structure within the association, under the direction of a trained able merchandising expert—someone of the type of men who have addressed our merchandising sessions, a man able to organize, develop and administer three phases that make up a national merchandising campaign, selling, publicity and trade organization development.

#### Cooperation an Essential

"Coordination and cooperation with the national associations of car manufacturers and car dealers is necessary to get their support and eventually their active cooperation and coordination. Without this and with the greater merchandising campaign instituted purely as an A. E. A. activity the effort will be met with much less success.

"It is the opinion of your committee that it is an eventual possibility that this greater merchandising campaign can be made the basis of a joint co-ordinated effort by all groups of the industry to better serve the consumer and thereby find greater profits and greater security for our various businesses."

The committee stated that at present the plan of adding a field merchandising man for each zone is the best method of promoting the merchandising work. It outlined as follows, however, the structure that it believes will be necessary to develop the comprehensive plan that will be reported at the November meeting:

"It is the sense of your committee that it is necessary to set up a new structure which we will call the Market Development Department, with an executive manager. Under the manager's direction there should be three or more major activities, namely,

(1) merchandising, (2) publicity, (3) trade organization development, each supervised by a department manager.

"Under publicity there should be formed a central bureau, this bureau to advise ways and means of obtaining national advertising for the benefit of the industry, trade paper publicity and advertising and newspaper publicity and advertising.

"The scope of the merchandising department as presently constituted should be continued and if necessary enlarged upon."

This undertaking would require a great deal of money and the committee stated that several methods of raising the funds are being considered. These methods include the pro rata assessment of members on the basis of sales.

The special market development committee, which was appointed at the Montreal meeting last summer, is composed of W. T. Morris, chairman, American Chain Co.; N. F. Ozburn, Ozburn-Abston Co.; R. W. Proctor, Black & Decker Mfg. Co.; A. C. Storz, Storz Western Auto Supply Co.; H. E. Ervin, Canadian Raybestos Co.; R. J. Cahall, Cahall Motor Supply Co.; T. K. Quinn, National Lamp Works; E. V. Hennecke, Moto-Meter Co.; and L. A. Safford, McQuay Norris Mfg. Co.

Another meeting of this committee is to be held in Chicago Nov. 3 and 4 to further formulate the greater merchandising campaign.

#### Handles Willys-Overland

OMAHA, Neb., Oct. 14.—Franchise here for the Willys-Knight, Overland and Whippet lines has been obtained by the J. H. Hansen Motors, Inc., 28th and Farnam streets. L. G. Peed, general sales manager of Willys-Overland, Inc., went over the situation with Mr. Hansen and the new merchandising organization is now in active operation. The Hansen organization has taken over the Willys-Overland branches—retail, service and parts—and the branch will operate exclusively wholesale.

Fourteen cars may be displayed in the company's sales room. The service station is commodious and modern.

Mr. Hansen formerly was Cadillac distributor in Omaha, Lincoln and Sioux City, being previously connected with the Chrysler distributors at Omaha.

## Canada's Production In August Was 15,261

### Output Ran 73 Per Cent Ahead of That for Same Month in 1925

WASHINGTON, Oct. 16.—Canadian automobile statistics for August, which were not available when the August figures for the United States were compiled by the Automotive Division, Department of Commerce, show a production for that month totaling 15,261 units, an increase of 73 per cent over the 8,963 units produced in August, 1925, but only slightly above the July production of 15,208 units, which had been the largest monthly output of the year. For the first eight months of the year, the cumulative production of 155,347 units, or 35 per cent above the 114,650 units produced during the corresponding period last year.

August, 1926, production, included 5,124 open passenger cars, 7,324 closed models, 2,079 truck, 725 chassis and 9 busses. Of the chassis, 321 were intended for passenger cars, 325 for trucks and 79 for either passenger or truck service.

#### 1926 Sales Are Better

CLEVELAND, Oct. 14.—Cleveland automobile distributors sold 6,593 more new automobiles during the first nine months of 1926 than for the same period in 1925, according to a compilation by Herbert Buckman, manager of the Cleveland Automobile Manufacturers and Dealers Association. This is an increase of 12 per cent over last year.

During the first nine months of 1926 32,248 new cars were sold and during the same period last year, 28,841.

#### Speaking of Gas Stations

BALTIMORE, Oct. 14.—With a total of 689 gasoline filling stations to its credit, Baltimore is probably the most gasoline "serviced" city in the country according to its size. A census just made by the license bureau of the city to determine the need of additional stations shows that there is a station for each 769 cars in the city.

## Rubber Tree Pest Menaces Future Crude Supply Says Kellerman

WASHINGTON, Oct. 14.—A single pest, such as a new and destructive beetle or a new fungus, within a few years might wipe out rubber plantations in the East Indies, the backbone of the world's supply, according to Dr. H. S. Kellerman, associate chief of the bureau of plant industry of the Department of Agriculture.

The warning is sounded by Dr. Kellerman as an intended impetus toward the establishment by the United States of its own rubber supplies.

"Certain diseases already exist which are a cause for concern," Dr. Kellerman declares. "Rubber trees in the East Indies suffer from a bark disease and a leaf disease, both of them considered dangerous. Thus far, they have been kept under control, but how long this will be the case cannot be foretold."



## \$84,939,373 Collected by States First Six Months Through Gasoline Taxes

WASHINGTON, Oct. 16.—Taxes on gasoline used in motor vehicles amounted to \$84,939,373 in the first six months of 1926, according to revised figures tabulated by the Bureau of Public Roads, Department of Agriculture. This money was distributed as follows: \$54,981,677 to state highway departments; \$19,338,976 for county and local roads; \$6,329,413 for state and county road bonds and \$4,140,998 for miscellaneous purposes.

Alabama .....	\$1,175,152
Arizona .....	456,334
Arkansas .....	1,861,280
California .....	7,413,624
Colorado .....	921,426
Connecticut .....	1,140,433
Delaware .....	173,214
Florida .....	6,197,421
Georgia .....	2,559,217
Idaho .....	477,123
Illinois .....	.....
Indiana .....	4,022,264
Iowa .....	2,193,634
Kansas .....	1,839,712
Kentucky .....	2,448,809
Louisiana .....	1,253,859
Maine .....	561,791
Maryland .....	1,019,388
Massachusetts .....	.....
Michigan .....	4,373,598
Minnesota .....	2,148,340
Mississippi .....	1,722,707
Missouri .....	2,561,611
Montana .....	388,946
Nebraska .....	1,402,941
Nevada .....	173,719

A total of 3,560,987,586 gallons of gasoline were taxed and it is estimated that an addition 856,450,000 gallons were consumed in the four states in which taxes were not collected—Illinois, Massachusetts, New Jersey and New York. The average of taxation was 2.39 a gallon, and the range from one to five cents. The average gasoline consumption per vehicle during the six months was 225 gallons.

The revenue by states follow:

New Hampshire .....	263,944
New Jersey .....	.....
New Mexico .....	322,536
New York .....	.....
North Carolina .....	3,598,412
North Dakota .....	339,507
Ohio .....	5,968,232
Oklahoma .....	2,775,015
Oregon .....	1,466,204
Pennsylvania .....	5,252,410
Rhode Island .....	224,693
South Carolina .....	2,454,033
South Dakota .....	848,663
Tennessee .....	1,700,601
Texas .....	2,355,792
Utah .....	568,724
Vermont .....	179,468
Virginia .....	2,446,643
Washington .....	1,595,302
West Virginia .....	1,194,022
Wisconsin .....	2,189,579
Wyoming .....	220,833
District of Columbia .....	478,217
Total .....	\$84,939,373

## Says Two-Car Family Opportunity Is Here

### Moock Tells California Dealers Demand Is Result of Natural Development

LOS ANGELES, Oct. 14.—The automobile industry is now entering a two-car-per family market, which holds tremendous possibilities for future business, declared Harry G. Moock, sales promotion manager of the Hudson Motor Car Company, in an address at a convention of Hudson and Essex dealers of Southern California held in Los Angeles under auspices of the Walter M. Murphy Company, distributors.

"The best part of this demand for two-cars-per family," said Mr. Moock, "is that it is not an artificially created situation, but one that has automatically developed. It arose, in fact, before many automobile men ever saw the handwriting on the wall. Two cars per family will soon be as common as the one-car-per-family now. Look at two-car garages.

"We used to hear of motor car saturation. There are 10 times as many cars as when this was first talked—but who hears it now? Just as 'two-pants' suits has become the sensible and economical vogue among business men of America, so has there suddenly grown up a definite and natural wave of demand for 'spare' motor cars. And this demand is a guarantee to the future prosperity of the automobile industry."

### Jameson Gives Dinner

NEW YORK, Oct. 14.—H. W. Jameson, for the last eight years general manager of the Paige-Detroit Co. of New York, was host to 200 Paige and Jewett dealers at a dinner in the music room of the Hotel Biltmore. Mr. Jameson, who resigned from the Paige organization a few days ago, was surprised when he was led into the Biltmore and confronted by practically his entire old dealer organization which was on hand to pay him homage.

### DeLuxe Opens New Branch

ST. LOUIS, Mo., Oct. 14.—The DeLuxe Automobile Co., Oldsmobile distributor in St. Louis territory which includes part of the state of Illinois, has opened a branch at 713 Hampshire Street, Quincy, Ill. The branch will be operated under the name of the Brockman Automobile Co. and owned, as is the DeLuxe Co., by Philip H. Brockman.

### More Space for Oakland

PONTIAC, Oct. 14.—An extra floor is being added to the administration building of the Oakland Motor Car Co. The addition will cost \$70,000 and will provide 70,000 square feet of additional space and will permit closer grouping of related departments.

## Marmon's District Managers Who Attended Merchandising Conference at Factory



Here are the district managers of the Marmon Motor Car Co., who recently held an important merchandising conference in Indianapolis. Included in the group are other Marmon executives. Left to right: H. W. D. Brown, sales manager; John Tainsh, dist. mgr.; John Boe, dist. mgr.; G. F. Green, dist. mgr.; Porter Smith, dist. mgr.; R. W. Greulich, dist. mgr.; L. F. Johnson, dist. mgr.; Paul Marford, dist. mgr.; H. C. Edwards, dist. mgr.; R. J. Mahoney, factory salesman; J. K. Gregory, dist. mgr.; S. A. Zweibel, sales mgr.; Ottis Lucas, sales mgr.; O. A. Hoffman, educational director.



## General Motors' Show Attracts Large Crowds

### Complete Line of Cars Are Displayed in Brilliant Setting

DETROIT, Oct. 15.—Exhibition of the full line of General Motors cars in the General Motors building, and the throwing of the great structure open for public inspection for the first time since it was built six years ago, is attracting large crowds. The show opened Oct. 9 and closes Oct. 16.

All the various units of the corporation are showing their complete lines of cars in the main show in the exhibition floor on the fourth floor while the Cadillac Motor Car Co. is conducting an additional display on the main floor. The Buick Motor Co., Chevrolet Motor Co., Olds Motor Works, and Oakland Motor Car Co., are represented in the passenger car display while Yellow and G. M. C. truck companies, Chevrolet and Pontiac have an interesting showing in the commercial car display, which also includes Yellow taxicabs, Hertz, Drivurself cars, and a Cadillac ambulance.

Autumn foliage and chrysanthemums have been used to advantage with 20 large mural paintings to form the background for the show which includes 100 passenger cars besides the commercial vehicles. A stage occupies the center of the room from which George Olsen and his Hotel Pennsylvania orchestra present a varied program of dance and musical comedy selections.

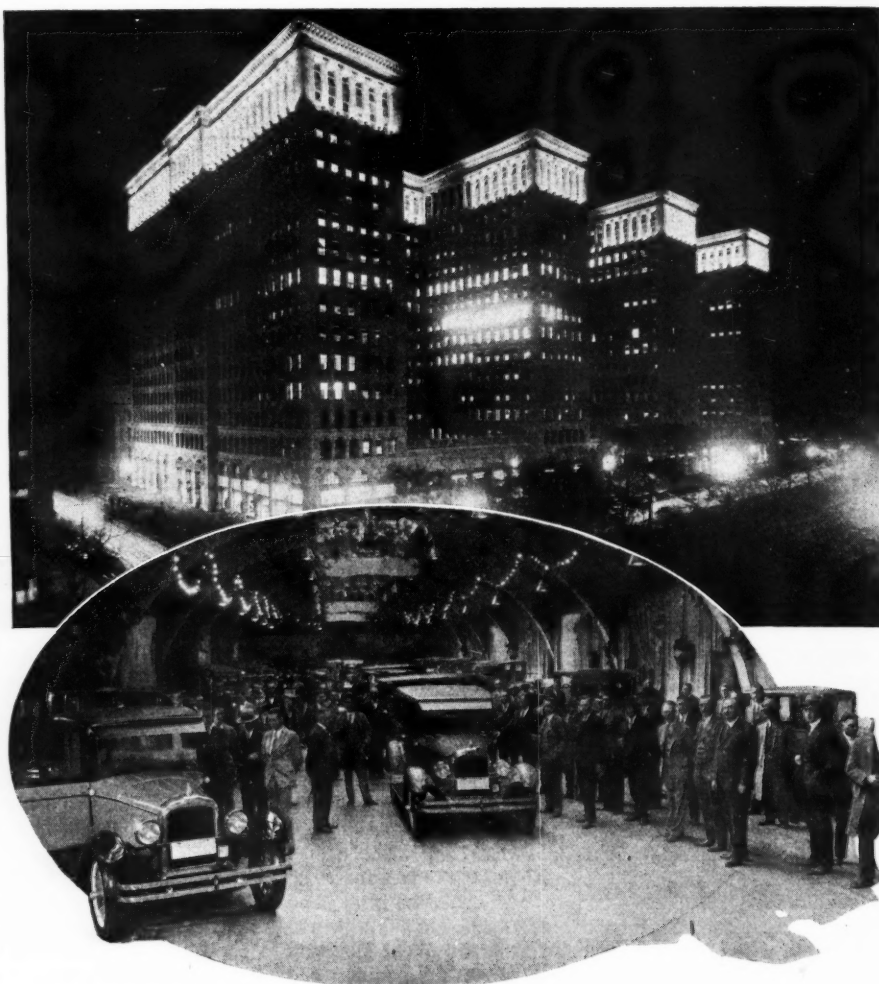
Guides are stationed at various points throughout the building to provide the public with any information about the structure. Guests are welcome in the lobby and the various General Motors units' showrooms, and the retail stores, the golf school on the seventh floor, on the 13th floor, and in the cafeteria, lounge rooms and assembly hall on the 15th floor.

During show week the two top floors of the building are being flood lighted with vari-colored lights thrown from 320 huge lamps which have been installed to illuminate the Corinthian columns and the cornice above. The display is visible for miles and is said to be the most spectacular ever made in Detroit.

While General Motors is exhibiting its full line in the building, dealers for a radius of 50 miles of Detroit are holding special showings of General Motors cars in their respective showrooms throughout the week.

#### To Canvass Makers First

WASHINGTON, Oct. 14.—A canvass of the automobile industry, especially those manufacturers engaged in the construction of aviation engines, has been ordered by the War Department at the direction of President Coolidge.



Above—A striking view of the General Motors building in Detroit, showing night lighting effects. Below—A glimpse of the General Motors show held in Detroit Oct. 9-16

Purpose of the survey is to determine whether the government's proposed plan of selling a surplus of 12,000 Liberty motors will work a hardship on the industry. If it does not the plan provides that these motors are to be sold to private aircraft builders at a considerable price reduction as an inducement to stimulate commercial aviation.

#### Many Foreigners to Attend

CHICAGO, Oct. 16.—The Automotive Equipment Association has given out a list of 25 representatives of foreign automotive concerns who already have signified their intention of attending the A. E. A. show at Chicago, Nov. 8-13. The countries represented include, England, India, Denmark, Italy, Australia, Holland, Egypt, Yugoslavia, Austria and Mexico.

#### To Help Star Dealers

OAKLAND, Cal., Oct. 14.—Creation of a new department for the promotion of sales in general, and for the assistance of dealers in particular, is announced by the Pacific Coast Star Company, manufacturers of Star cars. Philip Sheridan, of Oakland, has been appointed as head of the new department. He will maintain headquarters here.

#### Hold Exhibit in Tent

SIOUX CITY, Ia., Oct. 14.—Twenty different manufacturers were represented in the big automobile tent at the Inter-State Fair last week and exhibits were valued at \$150,000 in the biggest and most varied automotive display in the history of the fair. Public interest in the cars was high, dealers reported, and the fall season in this territory is anticipated to set a record for sales of new models. The exhibit was arranged by the motor trades bureau of the Chamber of Commerce in conjunction with the fair association.

#### Detroit for Headquarters

DETROIT, Oct. 14.—The Delco-Remy Corp., latest subsidiary of General Motors, which will take over the sale of products of the Dayton Engineering Laboratories of Dayton and Remy Electric Division of Anderson, will have headquarters in the General Motors building in Detroit.

Manufacturing administration of the two divisions was centralized under one head 5 months ago and the new subsidiary will perform a similar function by correlating the selling activities from a single office.

## New York Packard Puts Vast Sum Into Expansion

One Service Building Alone Will Call for \$2,000,000 Investment

NEW YORK, Oct. 14.—Great progress has been made by the Packard Motor Car Co. of New York in the last year in the development of its program for expanding service facilities throughout the city.

The company is now planning erection of a building on Eleventh Avenue between 54th and 55th streets, which will have more than 300,000 square feet of space, will be eight stories high and will cost about \$2,000,000. This organization will service cars of the company's customers in central Manhattan.

Another service building is in course of construction at Broadway and Sherman Avenue, near 196th Street, which will be available to Riverside Drive customers. Property also has been bought at Fordham Road near Bronx Park from which Bronx owners will be served.

A sales and service building at Atlantic and Glasson Avenues, Brooklyn, was purchased recently at a cost of more than \$350,000. Additions are now being made to this building. During the present month another service unit was put in operation in the Flatbush section, Brooklyn.

Enlargement of floor space is being made in the Newark branch and in other suburban branches.

Lee J. Eastman, president of the company, says the program was made necessary by the great growth in Packard sales in this section.

### Cleary Joins C. C. J. C.

PHILADELPHIA, Oct. 20.—John Cleary has become associated with the Chilton Class Journal Company as a field editor. Mr. Cleary is widely known in both the manufacturing and merchandising ends of the automotive industry. Born in Philadelphia, he was graduated from the public schools and prepared for the priesthood but gave up seminary life to engage in journalism. He specialized in automobile writing on Philadelphia newspapers but became interested in advertising and handled the accounts of a number of distributors.

Eventually he gave up newspaper work and became sales promotion manager for the local Cadillac distributor. His next step was to the position of advertising manager of the Cadillac Motor Car Company at Detroit in 1921. Mr. Cleary left Cadillac to assist in the organization of the Collins Motor Car Co. and when this concern was taken over by the Peerless Motor Car Co. he became advertising manager of Peerless.

## Two Olds Branches Now In New Quarters



Above—C. H. Hurst, Olds branch manager at Chicago. Below—C. C. Lee, Olds branch manager at Buffalo

Two new branch buildings are now occupied by the branch activities of Olds Motor Works in Chicago and Buffalo. The Chicago building is at South Michigan avenue and 24th street, affording much larger and finer quarters than at the former location at 2518 South Michigan avenue. From this stronghold C. H. Hurst, Chicago branch manager, will direct a dealer organization in northern Illinois and eastern Iowa as well as the large dealer organization of the Chicago metropolitan district.

The Buffalo branch will control the dealer activities of the western half of New York state. Adequate facilities to serve both sales and service operations have been established in the new branch, which is under the management of C. C. Lee, who formerly was assistant manager of the New York branch. The new Buffalo branch is located at 1018-20 Main St.

### In New Sales Home

YORK, Pa., Oct. 14.—Charles E. Motter, now dealer for Marmon exclusively, has moved to a new sales home at 33 South Duke Street.

## Florida Advertising Plan Rapped by Vane

Denounces Scheme to Use Part of Gas Tax Fund For State Publicity

ST. LOUIS, Oct. 16.—A scheme to use 25 per cent of the revenue derived from the four cent gasoline tax in Florida to carry on a national advertising campaign for the state has been vigorously denounced by C. A. Vane, general manager of the National Automobile Dealers' Association, on behalf of the association. Mr. Vane declares that the N. A. D. A. will call on all Florida automobile dealers to oppose this scheme and on dealers throughout the country to take steps to check any similar proposal in other states.

The Florida scheme is backed by an advertising agency at Jacksonville which for a number of years has been endeavoring to have a part of the gasoline tax money set apart for state advertising purposes. On October 6 this agency wrote to Charles E. Gambill, formerly president of the N. A. D. A., asking him to get the support of the association for the advertising plan which it was said would take \$3,000,000 a year from the money paid in by motorists as gasoline taxes. It was stated that an effort is being made to bring about similar diversion of gasoline tax revenue in 34 other states.

Replying for the N. A. D. A. Mr. Vane declares: "As a national dealer body we are unalterably opposed to any such principle of taxation, and we shall see to it that the automobile dealers of Florida are warned against support of any such proposal as you are submitting."

Continuing Mr. Vane states: "You are trying to establish a principle in taxation which, if carried to its logical conclusion, would ultimately result in the wrecking of this business, or any other business which for the moment happened to appeal to the choice of the law makers as being a fit subject for such special taxation." Gasoline taxes, Mr. Vane said, should be used for building highways and maintaining them.

### How to Prevent Punctures

CARSON CITY, Nev., Oct. 14.—The state of Nevada is operating a highway scavenger truck on constant patrol between Wadsworth, Lovelock and Carson City. The truck carries two 22-inch magnets suspended ahead of the rear wheels, and actuated by current from a five-kilowatt generator driven by a four-cylinder gas engine. The magnets are suspended five inches from the pavement.

In three and one-half days' operation the truck picked up 4,850 pounds of metal, ranging from tacks and small nails to large spikes, hinges, and fragments of barbed wire.



# TRADE ASSOCIATION ACTIVITIES

## USED CAR BRANCH ELECTS

### Success Marks Progress of Year-Old Organization in Denver

DENVER, Colo., Oct. 16.—The Denver Used Car Dealers' Association, a branch of the Denver Automobile Association, has just completed its first year of existence. The event was celebrated by electing officers for the coming year, as follows:

President, Roy Cosmer, used car manager for Fishel-Walker Co.; vice-president, Harry Sayre, used car manager for Platt-Fawcett Co.; secretary, Tom Braden. Mr. Braden also is secretary of the Denver Automobile Dealers' Association, and it is largely due to his efforts that the subsidiary association was organized, and successful from the start. It is limited to 30 members, of which 28 are now enrolled, and two more applications for membership are in the hands of the secretary.

A marked improvement in the used car situation in this city is noticeable as a direct result of the cooperation the association has fostered among dealers in general.

### See Steel Mills

GARY, Ind., Oct. 15.—Some 30 members and guests of the Chicago Section of the Society of Automotive Engineers had an interesting inspection trip through the Illinois Steel Mills here this week.

They were met by a special train using a locomotive and two cars constructed like freight cars but with glass sides. Benches were provided and in these cars the inspection of the enormous plant was greatly facilitated.

Those members of the society who were fortunate enough to attend felt that the information gained in regard to this basic automotive material had been well worth while.

### Postpone Sales Congress

CHICAGO, Oct. 16.—Illness of H. M. Fancher, who was to be the principal speaker, was responsible for postponement of the sales congress planned jointly by the Chicago Automobile Trade Association and the National Automobile Dealers Association for Oct. 18 at Congress Hotel. This meeting and banquet will be held at a date to be announced later, a C. A. T. A. bulletin advises. Checks will be returned to those who ordered reservations.

### 300 At A. E. A. Rally

CINCINNATI, Oct. 16.—More than 300 men interested in the automotive selling attended an A. E. A. merchandising meeting held here recently. Otto Berger of the J. J. Bantlin company was chairman. M. D. Graham was the principal speaker of the evening, stress-

ing the necessity of every dealer having a thorough knowledge of his products and setting forth the following rules for successful business development:

1—Have it, for without a stock nothing can be sold.

2—Show it, don't hide your equipment and your stock.

3—Tell 'Em, by creating conversation of interest to the motor man and telling and leading the conversation into the matter of service and merchandising.

4—Show 'Em, when you have laid the foundation of the above requirements, then sell him.

### Special Railroad Rates

CHICAGO, Oct. 16.—A fare-and-a-half round trip rate from any point in the United States will be granted delegates to the annual convention of the National Association of Finance Companies Nov. 15-16, according to C. C. Hanch, general manager of the association. Mr. Hanch also announced that in response to a letter to members the association has received a big supply of suggestions of subject-matter for discussions during the meeting. These suggestions now are being gone over in the process of program building.

### Elect Six Trustees

TOLEDO, Oct. 16.—Six new trustees of the Toledo Automotive Trades Association have been elected to service for the ensuing year.

John Lownsbury, local Chevrolet distributor, was chosen to represent the passenger car division; P. H. Jones, distributor of Federal trucks and Hupmobile cars, will represent the truck division; Frank Schreiber, of the Pennsylvania Rubber & Supply Company, will represent wholesale accessories and electrical supply division; John Gillespie, president of the Gillespie, Curtin & Alter Company, was named from the retail tire and accessories division; LeRoy Geller, of the Leonhardt-Geller Company, garage division, and Thomas Cooper, secretary of the association, trustee-at-large.

The association recently had a fall outing up the Maumee River at Galbraith Island.

### Another Show at Fair

ALEXANDRIA, La., Oct. 16.—The annual automobile show of the Alexandria Automobile dealers will be held October 19 to 24 in connection with the Central Louisiana Fair. A. F. Lainer, Buick dealer, is chairman of the show committee and says he expects 75,000 visitors at the show. Practically every standard make and model of car will be displayed during the show.

## PLAN SHOW AT BALTIMORE

### Proposed Display of Operating Equipment Arouses Much Interest

BALTIMORE, Md., Oct. 16.—Announcement that the Baltimore show will include the display and actual operation of automotive shop equipment in a manner demonstrating what the ideal modern shop should be, has created considerable interest here in trade circles. Baltimore's show, which is held under the auspices of the Baltimore Automobile Trade Association will be held January 23-29. It will be managed by John E. Raine, association secretary, who managed five preceding shows.

Accessories are to have an important place in the 1927 show and there will be a feature of motor boats.

Arrangements are in the hands of a new show committee which is hard at work on plans. Several schemes for decoration are under consideration and it is desired finally to settle upon one that will make this show the most striking from that standpoint of any such events ever seen here.

The committee is composed of A. H. Bishop, president of the Autocar Sales and Service Co., and president of the association; E. T. Backus, president of the Backus Motor Company; Louis Fox, vice-president and general manager of Von Schlegell-Fox Motors, Inc.; Walter F. Knoip, president and general manager of the Franklin Motor Car Co.; E. R. Myers, president of the Motor Car Co.; Thomas W. Wilson, Jr., president of the Wilson-Nash Motors Co.; A. Stanley Zell, president of the Zell Motor Car Co.; Thomas G. Young, president of the Auto Supply Co.; R. B. Livie, general manager of the Baltimore Peerless Co., and Harold W. Drew, president and general manager of Drew Motors, Inc.

### Fetta Swings Gavel

SEATTLE, Oct. 16.—Election of officers and appointment of a new executive committee for the coming six months were the two most important features of the recent meeting of the Seattle Used Car Managers Association held at the New Washington. The election resulted as follows:

President, D. A. Fetta, used car manager of the Green-Porter Nash Corp.; vice-president, Jack Thornton, used car manager of the Oldsmobile Motor Company; secretary, Frank Hart, used car manager of the Ford Central Agency; assistant secretary, Frank Carpenter, in charge of used cars at the Hugh Baird Ford Agency.

The new executive committee includes L. R. Pittman of the Westlake branch of R. Knox Roberts Motors; L. G. Harris of Nute Motor Company; C. W. Clark of Rowland & Clark and Carl Arnold of Nagelvoort-Stearns Cadillac Company.



# Coming Motor Events

## Automobile Shows

**1927 NATIONAL SHOWS**  
New York.....Jan. 8-15  
Chicago.....Jan. 29-Feb. 5

Akron, O.....Feb. 5-12  
Goodrich Bldg.  
Albany, N. Y.....Feb. 26-March 5  
State Armory  
Baltimore, Md.....Jan. 22-29  
5th Regiment Armory  
Boston, Mass.....March 5-12  
Mechanics Bldg.  
Brooklyn.....Jan. 22-29  
Twenty-third Regiment Armory  
Camden, N. J.....Feb. 7-13  
Convention Hall  
Chicago.....Jan. 29-Feb. 5  
Annual Salon, Hotel Drake.  
Chicago.....Nov. 8-13  
Show and Convention of Auto-  
motive Accessories Association,  
Armory.  
Chicago.....Nov. 8-13  
Show and convention, Auto-  
motive Equipment Ass'n, Coli-  
seum.  
Chicago.....Nov. 15-19  
Show and convention of the Na-  
tional Standard Parts Ass'n,  
Hotel Serman.  
Charlotte, N. C.....Oct. 25-30  
Closed Car Display Week  
Cincinnati.....Jan. 15-22  
Cleveland.....Jan. 22-29  
Public Auditorium  
Cumberland, Md.....Jan. 31-Feb. 5  
Armory  
Dallas, Tex.....Oct. 9-24  
Automobile Bldg.

Deadwood, S. D.....Feb. 21-26  
Auditorium  
Detroit.....Jan. 22-29  
Convention Hall  
Des Moines.....Feb. 14-19  
Coliseum  
Elizabeth, N. J.....Oct. 22-30  
Second Regiment Armory  
Grand Rapids, Mich.....Jan. 17-22  
Armory  
Hartford, Conn.....Feb. 19-26  
State Armory  
Huntingdon, W. Va.....Feb. 21-26  
Vanity Fair Bldg.  
Indianapolis.....Feb. 14-19  
Auto Show Bldg.  
Kansas City, Mo.....Feb. 12-19  
Kansas City Automobile Show  
Los Angeles.....Feb. 12-19  
Annual Salon, Hotel Biltmore.  
Los Angeles.....Oct. 19-22  
Closed car salon, Los Angeles  
Motor Car Dealers' Assn., Bilt-  
more Hotel.  
Louisville, Ky.....Feb. 14-19  
Jefferson County Armory  
Milwaukee.....Jan. 15-22  
Auditorium  
Minneapolis.....Feb. 5-12  
Overland Bldg.  
Montreal, Can.....Jan. 22-29  
National Motor Show of Eastern  
Canada, Morgan Bldg.  
Newark, N. J.....Jan. 15-22  
Twentieth Annual Newark Au-  
tomobile Show.  
New York.....Nov. 28-Dec. 4  
Annual Salon, Hotel Commodore  
Peoria, Ill.....Feb. 15-19  
Armory  
Philadelphia.....Jan. 15-22  
Commercial Museum  
Providence, R. I.....Feb. 5-12  
Cranston Street Armory

Quebec, Can.....March 1-8  
Drill Hall  
Rochester.....Jan. 24-29  
Edgerton Park  
Saginaw, Mich.....March 9-12  
Scranton, Pa.....Jan. 24-29  
Armory  
Sheboygan, Wis.....Feb. 14-20  
New Eagles Auditorium  
Sioux Falls, S. D.....March 2-8  
Springfield, Ill.....Feb. 9-12  
State Arsenal  
St. Louis, Mo.....Feb. 14-19  
Syracuse.....Feb. 7-12  
State Armory

## Races

Dallas, Texas.....Nov. 11  
Laurel, Md.....Oct. 23  
Los Angeles, Cal.....Nov. 25

## Conventions

Automotive Equipment Association,  
Coliseum, Chicago.....Nov. 8-13  
Automotive Lighting Association  
Annual Meeting, Drake Hotel, 10  
A. M.....Nov. 4  
California Automobile Trade Asso-  
ciation, Hotel Richelieu, San  
Francisco.....Dec. 17-18  
Chicago.....Feb. 1-3  
National Automobile Dealers' Assn.,  
Hotel LaSalle  
Iowa Automotive Merchants Asso-  
ciation, Des Moines.....Oct. 28-29  
National Association of Finance  
Companies, Palmer House, Chi-  
cago.....Nov. 15-16  
National Standard Parts Association,  
Hotel Sherman, Chicago.....Nov. 15-19  
National Tire Dealers Association,  
Inc., Memphis, Tenn.....Nov. 16-18  
Society of Automotive Engineers,  
Transportation and Service  
Meeting, Boston, Mass.....Nov. 16-18

## COMING FEATURE ISSUES OF CHILTON CLASS JOURNAL PUBLICATIONS

November 4—Motor World Wholesale—Annual Marketing Issue  
December 10—Operation and Maintenance—Service Station Equipment Issue  
December 15—Commercial Car Journal—Good Roads Issue  
January 1—Automobile Trade Journal—Annual Show Issue  
January 6—Motor Age—Annual Show Issue  
Jan. 15—Commercial Car Journal—New York Show Issue  
January 27—Motor Age—Chicago Show Issue

### To Put Up New Garage

EUGENE, Ore., Oct. 14.—H. J. Bringle Motor Co., Paige and Jewett dealers here, have let the contract for a new garage building at Tenth and Olive Streets. The building will be a two-story 80x100 feet and equipped with modern facilities. G. R. Linn is now associated with H. J. Bringle in the business.

### Plan Fine Show Room

NEW YORK, Oct. 14.—The Uppercu Cadillac Corp. has leased the new two-story building that is being erected at 10 East 57th Street by the Schulte Real Estate Co. for a period of ten years at

an aggregate rental of approximately \$400,000. The building is being erected in accordance with plans prepared by George E. Birge, architect. Uppercu Cadillac will continue to occupy its showrooms at 1881 Broadway also. The new quarters will be used as a salon for custom built cars.

### Anthony in New Home

SAN FRANCISCO, Cal., Oct. 14.—Earle G. Anthony, Inc., distributors of the Packard throughout California, has moved into its new building, on Van Ness Avenue. Mr. Anthony, who owns KFI, Los Angeles, was recently elected president of the National Association of Broadcasters.

### Reo Building New Unit

LANSING, Oct. 14.—The Reo Motor Car Co. has broken ground for a new unit for the bus and truck division. It will be 100x500 feet, two stories high and comprising 150,000 square feet of floor space. The building will cost approximately \$200,000 and is being built south of the present bus plant.

### To Increase Plant's Capacity

CLEVELAND, Oct. 14.—Three additional factory units and an extension of the main building will be built by the Fisher Ohio Body Company at its plant at East 140th and Coit Road. All work is to be completed about the first of next year.

# Prices and Weights of Current Passenger Car Models

SHIP				SHIP				SHIP				SHIP			
WT.	PASS.	BODY STYLE.	PRICE	WT.	PASS.	BODY STYLE.	PRICE	WT.	PASS.	BODY STYLE.	PRICE	WT.	PASS.	BODY STYLE.	PRICE
<b>AUBURN "4-44"</b>				<b>CHEVROLET "X"</b>				<b>DU PONT "E"</b>				<b>HUPMOBILE "A"</b>			
.....	5-p	Touring	\$1,145	1780	2-p	Roadster	\$510	3400	4-p	Roadster	\$2,800	2620	5-p	Touring	\$1,325
.....	5-p	Roadster	1,145	1875	5-p	Touring	510	3450	5-p	Touring	2,800	.....	2-4-p	Roadster	1,385
.....	2-p	Coupe	1,175	2030	2-p	Utility Coupe	645	3550	4-p	Coupe	3,200	2800	5-p	Sedan	1,385
.....	5-p	Sedan	1,195	2130	5-p	Coach	645	3750	5-p	Sedan	3,400	2800	2-4-p	Coupe	1,385
<b>"6-66"</b>				2215	5-p	Sedan	735	<b>ELCAR</b>				<b>"E"</b>			
2850	4-p	Sp. Roadster	\$1,395	2215	5-p	Landau Sedan	765	<b>"4-55"</b>				3300	5-p	Touring	\$1,945
2860	6-p	Touring	1,395	<b>CHRYSLER</b>				.....	4-p	Roadster	1,495	3360	7-p	Touring	2,045
.....	3-p	Coupe	1,445	<b>"50"</b>				2560	5-p	Touring	\$1,095	3355	2-4-p	Roadster	2,045
3020	5-p	Brougham	1,495	2025	5-p	Touring	\$750	.....	4-p	Roadster	1,295	3465	2-4-p	Coupe	2,345
3070	5-p	Sedan	1,695	2025	2-p	Roadster	750	2900	5-p	Coach	1,195	.....	5-p	Brougham	2,245
3070	5-p	Wanderer	1,745	2230	2-p	Coupe	750	.....	3-p	Coupe	1,295	3545	5-p	Sedan	2,345
<b>"8-88"</b>				2335	5-p	Coach	780	2779	5-p	Sedan	1,395	.....	5-p	Victoria	2,345
(129 in. W. B.)				2410	5-p	Sedan	830	<b>"6-65"</b>				3580	5-p	Berline	2,445
3180	4-p	Sp. Roadster	\$1,695	2575	5-p	Touring	\$1,075	.....	5-p	Touring	\$1,295	.....	7-p	Sedan	2,495
3200	6-p	Touring	1,695	2545	2-p	Roadster	1,145	.....	4-p	Roadster	1,495	.....	7-p	Sedan Lim.	2,595
.....	3-p	Coupe	1,745	.....	2-p	Coupe	1,125	.....	3-5-p	Landau R'dster	1,675	<b>JEWETT</b>			
3380	5-p	Brougham	1,795	2780	5-p	Coach	1,145	2779	5-p	Coach	1,395	.....	5-p	Touring	\$1,150
3450	5-p	Sedan	1,995	2840	5-p	Sedan	1,245	2900	5-p	Coupe	1,495	.....	5-p	Brougham	1,165
3450	5-p	Wanderer	2,045	<b>"70"</b>				<b>"8-81"</b>				.....	5-p	Brougham	1,195
<b>(146 in. W. B.)</b>				2805	2-4-p	Roadster	\$1,495	.....	7-p	Touring	\$2,265	.....	5-p	4d. Sedan	1,295
.....	7-p	Sedan	\$2,495	2785	7-p	Phaeton	1,395	3000	3-p	Coupe R'dster	2,195	<b>JORDAN</b>			
<b>BUICK</b>				.....	5-p	Sp. Phaeton	1,495	.....	3-5-p	Landau R'dster	2,295	<b>"J"</b>			
<b>"115"</b>				.....	4-p	Coupe	.....	.....	4-p	Coupe	2,095	2915	4-p	Playboy Road.	\$1,845
2845	2-4-p	Roadster	\$1,195	2935	2-4-p	Royal Coupe	1,545	.....	5-p	Sedan	2,265	3200	5-p	Sedan	1,945
2955	5-p	Touring	1,225	2995	5-p	Brougham	1,525	4050	7-p	Sedan	2,765	3200	4-p	Victoria	1,945
3020	2-4-p	Coupe	1,195	3085	5-p	Royal Sedan	1,595	<b>ESSEX</b>				3200	5-p	Cus. Victoria	2,195
3150	5-p	2 d. Sedan	1,195	3090	5-p	Crown Sedan	1,795	2260	5-p	Touring	\$765	3200	5-p	Cus. Sedan	2,195
3110	4-p	Coupe	1,275	<b>"80"</b>				2500	5-p	Coach	795	<b>Series "AA"</b>			
3230	5-p	4 d. Sedan	1,295	(185½ in. *)				<b>FLINT</b>				3470	5-p	Sedan	\$2,495
<b>"120"</b>				3775	5-p	Phaeton	\$2,545	2525	5-p	Coach	\$ 960	3470	4-p	Victoria	2,495
(120 in. W. B.)				3730	2-4-p	Roadster	2,595	2580	5-p	DeL. Coach	1,075	<b>KISSEL</b>			
3800	4-p	Coupe	\$1,465	4105	5-p	Sedan	3,095	<b>"Z-18"</b>				<b>"55"</b>			
3670	5-p	2-d. Sedan	1,395	<b>(192½ in. *)</b>				2745	4-p	Roadster	\$1,360	(124 in. W. B.)			
3765	5-p	4-d. Sedan	1,495	4015	4-p	Coupe	\$2,895	2750	5-p	Touring	1,260	3020	5-p	Phaeton	\$1,585
<b>"128"</b>				<b>(198½ in. *)</b>				2885	4-p	Sp. Roadster	1,495	3660	7-p	Touring	1,685
(128 in. W. B.)				4225	7-p	Sedan	\$3,195	2890	4-p	Coupe Roadster	1,495	3065	2-p	Speedster	1,795
3570	4-p	Sp. Roadster	\$1,495	4260	7-p	Sedan Lim.	3,595	3030	5-p	Sedan 4d.	1,495	3225	4-p	Tourster	1,795
3635	5-p	Sp. Touring	1,525	<b>CUNNINGHAM</b>				3010	5-p	Brougham	1,450	3160	4-p	Speedster	1,895
3805	4-p	Country Club	1,765	<b>"V-6"</b>				<b>"E-80"</b>				3190	2-p	Speedster	.....
.....	5-p	Coupe	1,850	4500	4-p	Sp. Touring	\$6,150	(120 in. W. B.)				.....	(Enc.)	2,085	
3940	6-p	Brough. Sedan	1,925	4600	7-p	Touring	6,650	3335	4-p	Roadster	\$1,645	3275	4-p	Speedster	.....
4025	7-p	Sedan	1,995	4700	4-p	Coupe	7,600	3245	5-p	Touring	1,450	.....	2-p	Coupe R'dster	1,795
<b>CADILLAC</b>				5000	6-p	Limousine	8,100	3395	4-p	Sp. Touring	1,645	.....	4-p	Coupe R'dster	1,895
<b>"314" Standard Line</b>				<b>DAGMAR</b>				3500	4-p	Coupe	1,850	3300	5-p	Brougham	1,695
(132 in. W. B.)				<b>"6-70"</b>				3625	5-p	Sedan	1,925	3440	5-p	Bro'm Sedan	1,895
4170	5-p	Brougham	\$2,995	3750	4-p	Roadster	\$3,500	<b>(130 in. W. B.)</b>				.....	5-p	Spec. Bro'm	.....
4105	2-p	Coupe	3,100	3800	4-p	Sp. Tourer	3,500	3780	7-p	Sedan	\$2,125	3590	5-p	Bro'm Sed.	2,095
4190	5-p	Victoria	3,195	3700	4-p	Phaeton	3,500	<b>FORD</b>				4010	7-p	Sedan DeLuxe	\$2,585
4270	5-p	Sedan	3,250	4200	4-p	Petite Coupe	4,500	<b>With Starter, Dem. Rims and</b>				3640	7-p	Berline Sed	3,085
4370	7-p	Sedan	3,350	4200	4-p	Petite Sedan	4,500	<b>Balloon Tires</b>				.....	DeLuxe	3,185	
4460	2-p	Sport Coupe	3,500	4500	4-p	De Luxe Coupe	4,750	1655	2-p	Runabout	\$360	<b>"75"</b>			
4590	5-p	Sport Sedan	3,650	4700	5-p	Sedan	4,700	1728	5-p	Touring	380	(131 in. W. B.)			
<b>(138 in. W. B.)</b>				4800	7-p	Sedan	4,750	1860	2-p	Coupe	485	3220	5-p	Phaeton	\$1,985
4480	7-p	Imperial	\$3,535	<b>"6-60"</b>				1972	5-p	Tudor Sedan	495	3630	7-p	Touring	2,085
<b>Custom Built</b>				3150	5-p	Touring	\$1,785	2004	5-p	Fordor Sedan	545	3275	2-p	Speedster	2,195
(132 in.)				3200	2-p	Roadster	1,985	<b>FRANKLIN</b>				3335	4-p	Tourster	2,295
4220	2-p	Roadster	\$3,350	3500	5-p	Sedan	2,445	<b>"11"</b>				3360	4-p	Speedster	2,295
4300	2-p	Conv't Coupe	3,450	<b>DAVIS</b>				2800	3-p	Sport Road.	\$2,690	3425	2-p	Speedster	.....
<b>(138 in. W. B.)</b>				2915	5-p	Legion. Tour.	\$1,495	2965	3-p	Coupe	2,645	.....	(Enc.)	2,485	
4285	7-p	Touring	\$3,450	3000	5-p	Sedan	1,595	3175	5-p	Sedan	2,790	3500	4-p	Speedster	2,585
4275	5-p	Phaeton	3,450	3060	5-p	Imperial Sedan	1,795	.....	4-p	Victoria	2,790	.....	2-p	Coupe R'dster	2,195
4465	5-p	Sp. Phaeton	3,975	<b>"93-27"</b>				.....	5-7-p	Sedan	2,840	3565	4-p	Coupe R'dster	2,295
4465	5-p	Coupe	3,855	2325	5-p	Touring	\$1,235	3080	5-p	Oxford Sedan	2,865	3760	5-p	Brougham	2,095
4465	5-p	Sedan	3,995	2500	5-p	Sedan	1,285	3275	5-p	Sport Sedan	2,910	.....	5-p	Spec. Bro'm	2,195
4580	7-p	Suburban	4,125	2450	3-p	Coupe	1,285	3335	7-p	Limousine	2,990	.....	5-p	Spec. Bro'm	2,495
4615	7-p	Imperial	4,350	<b>DIANA "St. 8"</b>				3135	7-p	Cabriolet	4,400	<b>(139 in. W. B.)</b>			
<b>CASE</b>				2995	5-p	Roadster	\$1,795	<b>GARDNER</b>				3910	5-p	Bro'm Sedan	\$2,985
<b>J. I. C.</b>				2995	5-p	Palm Bch. Rds.	1,995	<b>6B</b>				4080	7-p	Sedan DeLuxe	3,485
3260	3-p	Roadster	\$1,840	3170	5-p	DeL. Bro'm	1,995	3070	4-p	Phaeton	\$1,395	4125	7-p	Berline Sed.	.....
3290	5-p	Touring	1,835	3275	5-p	De Luxe Sedan	2,195	3030	4-p	Roadster	1,395	.....	DeLuxe	3,585	
3470	5-p	Sp. Touring	2,160	3160	5-p	Cabriolet	2,095	3280	5-p	Custom Bro'm	1,645	<b>LINCOLN</b>			
3640	5-p	Sedan	2,590	3640	7-p	Sedan (135 in. W. B.)	2,695	3210	4-p	Landau R'dster	1,695	4460	2-p	Roadster	\$4,000
3650	5-p	Brougham	2,590	3640	5-p	Town Car	5,000	3280	5-p	Imp. Sedan	1,695	4580	7-p	Touring	4,000
<b>"Y"</b>				<b>DODGE BROTHERS</b>				<b>8B</b>				4565	4-p	Phaeton	4,000
3950	7-p	Touring	\$2,225	2448	2-p	Roadster	\$ 795	3350	4-p	Phaeton	\$1,795	4730	4-p	Sport Phaeton	4,900
4320	7-p	Sedan	2,975	2538	2-p	Special Roadster	845	3350	4-p	Sp. Roadster	1,795	4750	4-p	Coupe	4,600
<b>CHANDLER BIG SIX</b>				2567	5-p	Touring	795	3260	5-p	Custom Bro'm	1,995	4885	4-p	Sedan	4,800
3090	2-4-p	Roadster	\$1,695	2642	5-p	Spec. Touring	845	3280	5-p	Victoria Bro'm	2,045	4760	5-p	Sedan	4,900
3085	5-p	Sport Touring	1,645	2497	2-4-p	Sport Roadster	945	3480	4-p	Landau R'dster	2,095	4890	7-p	Sedan	5,100
3223	7-p	Touring	1,645	2617	4-p	Sport Touring	880	3620	5-p	Imp. Sedan	2,095	4945	7-p	Limousine	5,300
3460	5-p	20th C'y Sedan	1,495	2589	2-p	Coupe	845	<b>HERTZ</b>				<b>LOCOMOBILE</b>			
3525	5-p	Met. Sedan	1,595	2632	2-p	Spec. Coupe	895	<b>"D-1"</b>				<b>"Jr.-8"</b>			
.....	4-p	Coupe	1,675	2811	5-p	Sedan	895	.....	5-p	Touring	.....	3035	4-p	Roadster	\$2,150
3594	7-p	Sedan	1,795	2883	5-p	Spec. Sedan	945	3800	5-p	Sedan	.....	3055	5-p	Touring	1,785
3629	7-p	Berline	2,095	2920	5-p	DeL. Sedan	1,075	<b>HUDSON</b>				3335	5-p	Sedan	2,285
<b>Standard Six</b>				<b>DUESENBERG</b>				<b>"Super Six"</b>				3330	5-p	Brougham	2,285
(109 in. W. B.)				<b>Straight "8"</b>								4475	4-p	Sportif	\$5,500
2325	5-p	Touring	\$ 945	3920	2-p	Roadster	.....	3350	4-p	Phaeton	\$1,795	4370	4-p	Roadster	\$5,900
2565	5-p	De Luxe Tour.	1,005	3970	4-p	Roadster	.....	3350	4-p	Sp. Roadster	1,795	4680	4-p	Victoria Coupe	6,950
.....	2-4-p	Sport R'dster	1,135	3700	5-p	Phaeton	.....	3260	5-p	Custom Bro'm	1,995	4842	5-p	Victoria Sedan	7,390
2580	5-p	Sedan	995	3980	4-p	Sp. Phaeton	.....	3620	5-p	Landau R'dster	2,095	4615	7-p	Cabriolet	7,500
2520	2-p	Coupe	1,035	4115	5-p	Sedan	.....	3480	4-p	Landau R'dster	2,095	4930	7-p	Suburban	7,500
.....	5-p	De Luxe Sedan	1,095	4500	7-p	Sedan	.....	3620	5-p	Imp. Sedan	2,095	4615	7-p	Brougham	7,500
.....	2-p	De Luxe Coupe	1,125	<b>Manufacturers do not quote list prices.</b>								<b>"48"</b>			
<b>Special Six</b>				3920	2-p	Roadster	.....	3395	7-p	Phaeton	\$1,250	5030	4-p	Sportif	\$7,460
(116 in. W. B.)				3970	4-p	Roadster	.....	3440	5-p	Coach	1,195	5330	7-p	Touring	\$7,460
2800	5-p	Touring	\$1,145	3980	4-p	Sp. Phaeton	.....	3560	4-p	Brougham 4d.	1,495	5640	7-p	Touring Lim.	\$7,500
2975	5-p	Sport Touring	1,295	4115	5-p	Sedan	.....								



# Prices and Weights of Current Passenger Car Models

SHIP  
WT. PASS. BODY STYLE. PRICE

McFARLAN "6"			
<b>"SV"</b>			
3700	2-p	Roadster	\$2,650
3700	2-p	Spec. Roadster	2,900
3600	5-p	Touring	2,650
3600	7-p	Touring	2,750
3600	5-p	Brougham 4d.	3,180
3950	4-p	Coupe	3,180
3850	5-p	Sedan	3,180
3850	5-p	Spec. Sedan	3,180
3850	7-p	Sedan	3,280
3850	5-p	Sub. Sedan	3,380
3850	7-p	Sub. Sedan	3,480

<b>"TV"</b>			
4000	2-p	Roadster	\$5,400
4600	4-p	Sp. Touring	5,600
4900	4-p	Coupe	6,720
5200	4-p	Tour. Sedan	6,720
5200	7-p	Tour. Sedan	6,810
5200	6-p	Sedan	6,720
5200	7-p	Sedan	6,810
5200	7-p	Spec. Sedan	6,810
5200	7-p	Enc. Sedan	7,110
5200	7-p	Sub. Sedan	7,110
5200	7-p	Town Car	9,000

<b>"Straight 8"</b>			
3400	2-p	Roadster	\$2,650
3400	4-p	Roadster	2,900
3400	5-p	Touring	2,650
3450	7-p	Touring	2,750
3650	5-p	Sedan	3,180
3650	5-p	Sub. Sedan	3,380
3700	7-p	Sedan	3,280
3700	7-p	Sub. Sedan	3,480
3650	4-p	Coupe	3,180
3650	5-p	Coach Broug.	3,180
3750	5-p	Town Car	4,600

MARMON "75"			
4251	2-p	Speedster	\$3,485
4256	4-p	Speedster	3,485
4256	5-p	Phaeton	3,485
4256	7-p	Tour. Speedster	3,565
4256	2-p	Coupe R'dster	3,565
4256	5-p	Town Coupe	3,195
4256	2-p	Coupe	3,485
4346	4-p	Victoria	3,485
4346	5-p	Brougham	3,565
4498	5-p	Sedan	3,565
4620	7-p	Sedan	3,640
4620	5-p	Custom Sedan	3,960
4620	7-p	Custom Sedan	4,075
4620	7-p	Custom Lim.	4,175

MOON "6-60"			
2295	3-5-p	Roadster	\$ 995
2330	5-p	Del. Roadster	1,095
2340	5-p	Phaeton	995
2420	5-p	Coach	995
2520	5-p	Del. Broug.	1,095
2605	5-p	4-d Sedan	1,195
<b>Series "A"</b>			
2600	5-p	Roadster	\$1,395
2650	5-p	Touring	1,195
2720	5-p	Cab. Roadster	1,595
2710	5-p	Del. Bro'm.	1,395
2860	5-p	Del. Sedan 4d.	1,545

NASH "Light Six"			
2275	5-p	Touring	\$865
2310	2-p	Coupe	925
2475	5-p	Sedan	995

<b>"Special"</b>			
2900	2-p	Roadster	\$1,115
2980	5-p	Touring	1,135
2980	4-p	Roadster	1,225
3030	2-p	Business Coupe	1,165
3150	5-p	Sedan 2d.	1,215
3170	5-p	Sedan	1,315

<b>"Advanced"</b> (121 in. W. B.)			
3390	4-p	Roadster	\$1,475
3400	5-p	Touring	1,340
3550	5-p	Sedan 2d.	1,425
3650	5-p	Sedan	1,525

<b>"Advanced"</b> (127 in. W. B.)			
3480	7-p	Touring	\$1,490
3640	4-p	Victoria	1,790
3750	5-p	Coupe	1,990
3830	7-p	Sedan	2,090

OAKLAND "6"			
2590	4-p	Sp. Roadster	\$1,175
2620	4-p	Phaeton	1,095
2745	5-p	2d. Sedan	1,095
2705	3-p	Landau Coupe	1,125
2855	5-p	4-d. Sedan	1,195
2885	5-p	Landau Sedan	1,295

OLDSMOBILE "30E"			
2220	5-p	Touring	\$875
2340	4-p	Del. Roadster	975
2405	5-p	Del. Touring	980
2450	2-p	Coupe	925
2460	5-p	Coach	950
2470	2-p	De Luxe Coupe	990
2620	5-p	De Luxe Coach	1,050
2650	5-p	Sedan	1,025
2690	5-p	De Luxe Sedan	1,125
2700	5-p	Landau	1,190

SHIP  
WT. PASS. BODY STYLE. PRICE

OVERLAND			
1985	.....	Whippet	\$645
2130	2-p	Touring	685
2075	5-p	Sedan	695
<b>"93"</b>			
2395	5-p	Touring	\$825
2397	2-p	Coupe	825
2443	4-p	Std. Sedan	835
2583	5-p	De Luxe Sedan	975

PACKARD "6"			
.....	4-p	Roadster	\$2,685
.....	5-p	Phaeton	2,585
.....	4-p	Coupe	2,685
.....	5-p	Sedan	2,585

(133 in. W. B.)			
.....	7-p	Touring	\$2,785
.....	7-p	Sedan	2,785
.....	5-p	Club Sedan	2,725
.....	7-p	Sedan Lim.	2,885

<b>"8"</b> (136 in. W. B.)			
.....	4-p	Runabout	\$3,850
.....	5-p	Phaeton	3,750
.....	4-p	Coupe	4,750
.....	5-p	Sedan	4,750

(143 in. W. B.)			
.....	7-p	Touring	\$3,950
.....	5-p	Club Sedan	4,890
.....	7-p	Sedan	5,000
.....	7-p	Sedan Lim.	5,100

PAIGE "6-72"			
(125 in. W. B.)			
.....	7-p	Touring	\$1,655
.....	4-p	Cab. Roadster	1,995
.....	5-p	Sedan	1,695
.....	4-p	Coupe	1,995
.....	7-p	Sedan	1,995
.....	7-p	Limousine	2,245
(115 in. W. B.)			
.....	4-p	Roadster	\$1,540
.....	5-p	Brougham	1,395
.....	5-p	Landau Bro'm	1,395
.....	5-p	Sedan	1,640

PEERLESS "6-72"			
(126 1/2 in. W. B.)			
3175	5-p	Touring	\$1,895
3425	5-p	Coupe	2,295
3500	5-p	Sedan	2,395

(133 1/2 in. W. B.)			
3275	2-p	Sp. Roadster	\$2,195
3300	7-p	Phaeton	1,995
3700	7-p	Sedan	2,595
3825	7-p	Limousine	2,695
3575	5-p	De Luxe Sedan	2,795
3650	7-p	De Luxe Sedan	2,995

<b>"6-80"</b>			
2800	5-p	Phaeton	\$1,395
2895	5-p	Roadster	1,495
2950	2-4-p	Coupe Roadster	1,565
3140	5-p	Sedan	1,495
3140	5-p	Std. Sedan	1,595
3140	5-p	Sport Sedan	1,795
3140	5-p	De Luxe Sedan	1,795

<b>"6-90"</b>			
.....	2-4-p	Sport Roadster	.....
.....	.....	Coupe Roadster	.....
.....	.....	Sedan	1,895
.....	.....	Sedan	1,895
.....	.....	Landulet	1,995

<b>"8-69"</b> (133 1/2 in. W. B.)			
3675	.....	Roadster	\$2,995
3300	7-p	Sedan	3,095
3950	5-p	Sedan	3,495
4025	7-p	Sedan	3,595
4100	7-p	Ber. Limousine	3,795

<b>"8-80"</b> (126 in. W. B.)			
.....	5-p	Coupe	\$2,795
.....	5-p	Sedan	2,995
PIERCE-ARROW "80"			
3285	2-p	Runabout	\$2,895
3300	4-p	Phaeton	3,095
3440	7-p	Phaeton	2,895
3470	5-p	Coach 2d.	2,995
3405	2-p	Coupe	3,100
3525	5-p	Coach 4d.	3,250
3620	7-p	Coach	3,250
3420	4-p	Coupe	3,695
3500	5-p	Sedan	3,895
3600	7-p	Sedan	3,995
3655	7-p	Enc. Dr. Lim.	4,045
3675	7-p	Lim. Coach	3,450

<b>"36"</b>			
4445	2-p	Runabout	\$5,875
4480	4-p	Touring	5,875
4585	7-p	Touring	5,875
4760	3-p	Coupe	6,375
4800	4-p	Sedan	6,375
4760	7-p	Sedan	5,875
4770	4-p	Coupe Sedan	6,375

SHIP  
WT. PASS. BODY STYLE. PRICE

PIERCE-ARROW (Continued)			
4840	7-p	Enclosed Lim.	5,875
4840	7-p	French Lim.	7,500
4840	7-p	Encl. Dr. Land	6,000
4760	7-p	Sedan Landau	6,000
4880	4-p	Lim. Encl.	6,375
4800	4-p	Sedan Landau	6,600
4880	4-p	Encl. Landau	6,600
4740	7-p	French Landau	8,000

PONTIAC			
2395	2-p	Coupe	\$825
2450	5-p	2d. Sedan	825
2455	5-p	Landau Sedan	895

REO "T-6"			
3375	2-p	Roadster	\$1,665
3182	5-p	Sp. Touring	1,395
3365	2-p	Coupe	1,495
3365	2-p	Spec. Coupe	1,565
3515	5-p	Sedan 4d.	1,565
3565	5-p	Spec. Sedan	1,745

REVERE "25"			
3900	2-p	Sp. Roadster	\$2,750
3975	4-p	Speedster	2,750
4050	5-p	Touring	2,750
4300	5-p	Sedan	3,800

<b>"M"</b>			
3700	2-p	Roadster	\$3,200
3800	4-p	Sportster	3,200
3970	5-p	Touring	3,200
4400	5-p	Sedan	4,000

RICKENBACKER "E"			
3038	5-p	Touring	\$1,750
3068	7-p	Touring	1,795
2953	4-p	Roadster	1,795
3116	5-p	Coupe-Sedan	1,495
3202	5-p	Brougham	1,695
3092	4-p	Coupe Roadster	1,920
3317	5-p	Sedan	1,995
3353	7-p	Sedan	2,195

<b>"B-8"</b>			
3227	4-p	Roadster	\$2,195
3315	5-p	Touring	2,150
3355	7-p	Touring	2,195
.....	4-p	Sup. Sp. Roadster	3,250

3445	5-p	Coupe Sedan	2,095
3486	5-p	Brougham	2,195
3345	4-p	Coupe Roadster	2,320
3603	5-p	Sedan	2,495
3640	7-p	Sedan	2,595
.....	4-p	Sup. Sp. Sedan	5,000

ROAMER "6-50-55"			
.....	5-p	Spec. Tourer	\$1,295
.....	5-p	Spec. Sp. Tourer	1,395
.....	2-p	Buc. Coupe	1,395
.....	5-p	Coupe	1,395
.....	5-p	Sedan De Luxe	1,695

<b>"6-54-E"</b>			
.....	4-p	Roadster	\$2,385
.....	4-p	Tourer	1,985
.....	4-p	Sport	2,285
.....	7-p	Tourer	2,285
.....	3-p	Cabriolet	2,750
.....	5-p	Sedan	2,950

<b>"4-75-E"</b> "Custom Built"	
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# Mechanical Specifications of Current Passenger Car Models

*This list comprises cars distributed on a national basis*

MAKE AND MODEL										ENGINE										ELECTRICAL SYSTEM		CLUTCH—Type and Make		Gear Set—Make		Universal—Type and Make		Type and Make		Gear Ratio		Foot—Type and Location		Hand—Type and Location		4-Wheel Type		Steering Gear—Make		Rear Springs—Type and Length		Chassis Lubrication—Type and Make		ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS	
Wheel Base (Inches)	Tire Size	Decimals-Balloons	Make and Model	Number and Stroke	Rated H.P.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bear.	Crankshaft Vibration	Oiling System	Cooling System	Thermosstat?	Water Pump	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type and Location	4-Wheel Type	Optional	Length	Chassis Lubrication—Type and Make	ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS														
4-44	30x5 25	Lyc.	CF 4-35x5	21.0	206	He.	He.	He.	Al.	4	N	P.C.	Th.	N	N	N	N	Remy	Remy	P.B&B	W.G.	U-P	Sal.	5.10	E-F	E-T	H	M	Ross	S-56 3/4	Qe-Ju	A-K													
6-66	30x5 25	Lyc.	4-35x5	21.0	224	L	Ch.	Ch.	Al.	4	N	P.C.	Th.	N	N	N	N	Remy	Remy	P.B&B	W.G.	U-P	Sal.	5.10	E-F	E-T	H	M	Ross	S-57	Pr-Dot	A-J													
8-88	30x5 27	Lyc.	4-40x5	33.8	299	L	Ch.	Ch.	Al.	4	N	P.C.	Th.	N	N	N	N	Remy	Remy	P.B&B	W.G.	U-P	Sal.	5.10	E-F	E-T	H	M	Ross	S-57	Pr-Dot	Al													
115	31x5 25	Ow.	Std. 6-31x5	23.4	274	I	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
120-128	33x6 20	Ow.	Std. 6-31x5	29.4	207	I	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	314	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
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132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
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132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.	He.	Al.	4	Y	P.C.	Th.	N	N	N	N	Delco	Delco	D.Own.	Ow.	m-Ow.	Own.	4.90	E-F	E-T	H	M	Jac.	V-48	Pr-Ze	Alm													
132-132	33x6 20	Ow.	Std. 6-31x5	31.2	331	L	He.</																																						

(Continued on page 48)



IT IS now a firmly set conviction on the part of thousands of motor car dealers that

## **LOCKHEED HYDRAULIC** *Four* **BRAKES** *Wheel*

are not only the most efficient ever designed, but that their superiority is so convincingly demonstrable as to constitute one of the chief factors in sales. As a result, these dealers not only sell more cars, but find that the cost of brake service on the new cars they sell is so much lower as to mean a substantially higher net profit.

THE HYDRAULIC BRAKE COMPANY  
DETROIT, MICHIGAN, U. S. A.

### Mechanical Specifications of Current Passenger Car Models—Continued

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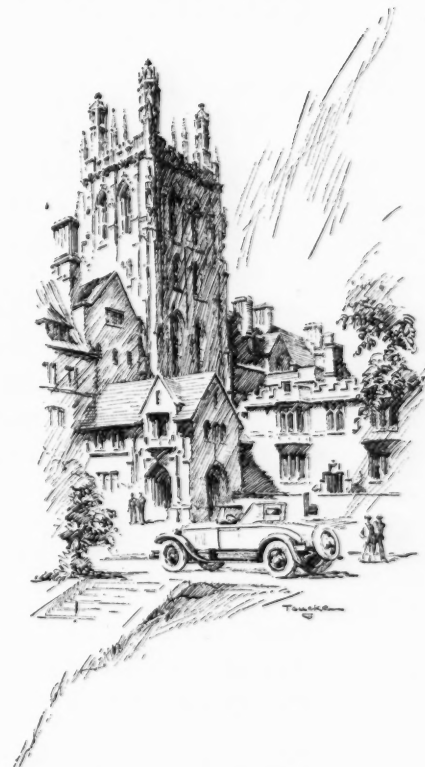


# Five hundred color and upholstery combinations fifty body styles and types

America has greeted Cadillac's individualization of motor car choice with an enthusiasm fully equal to that which accompanied its first realization that in this great new line of Cadillac cars had been achieved a new and sensational advance in motor car performance.

To such chassis features as unexampled smoothness of power, and speed that makes this new Cadillac, by the test of actual comparison, one of America's fastest stock cars, is now joined the unique advantage of 50 Body Styles and Types and 500 Color and Upholstery Combinations.

It is precisely because of Cadillac's supremely great performance and dependability that this unprecedented variety in body offerings is regarded as characteristic of Cadillac's consideration for its public, and as important and significant as any of Cadillac's great engineering triumphs.



## The even greater success that Cadillac is achieving—

The man who buys a new 90-degree eight-cylinder Cadillac is not especially interested in having his attention called to one or the other examples of Cadillac manufacturing excellence.

He knows that every earnest, honest effort to build a good motor car has for its inspiration and example the desire to approach Cadillac fineness of fabrication; that he will never long for deeper

motoring satisfaction until and unless a greater Cadillac appears. That is why new hosts of buyers are flocking to the 90-degree Cadillac and surpassing all Cadillac sales records for 24 years.

*Priced from \$2995 upward, f. o. b. Detroit*

# NEW 90 DEGREE C A D I L L A C

DIVISION OF GENERAL MOTORS

CORPORATION



# WHAT A CHANCE

*The new type Perfection Heater at unheard-of low prices—means easier sales—quicker, bigger profits*

**N**EVER before have dealers and service men had such an opportunity for big-volume, profitable business during the winter months!

Think of the thousands and thousands of motorists who have been driving in cold cars each winter because the kind of heater they wanted was not available!

They're going to jump at the chance when they learn they can have genuine Perfection Heaters in their cars for only \$5, \$8 or \$10.

New type heaters that pour luxurious warmth into the car the minute the motor is started—

Heaters that don't rattle or magnify motor noises . . . approved by the Underwriter's Laboratories—

Heaters that can be installed almost while they wait—

sturdy heaters, compact and as well made as any part of the car.

That's the news that is being told to the nation through the big Perfection advertising campaign in the Saturday Evening Post, this fall and winter.

And to say that you can sell ten heaters this winter where you used to sell one in the winters past, is no exaggeration—if you take advantage of this new Perfection proposition at once.

*Don't wait. Send in the coupon today.*

PERFECTION HEATER & MFG. CO.

6543 Carnegie Avenue - Cleveland, Ohio

Please send me a full description of the new type Perfection Heater for motor cars—also complete information about your attractive franchise.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

☐ Jobber

☐ I am a dealer for \_\_\_\_\_ car.

☐ I am interested in the complete line.

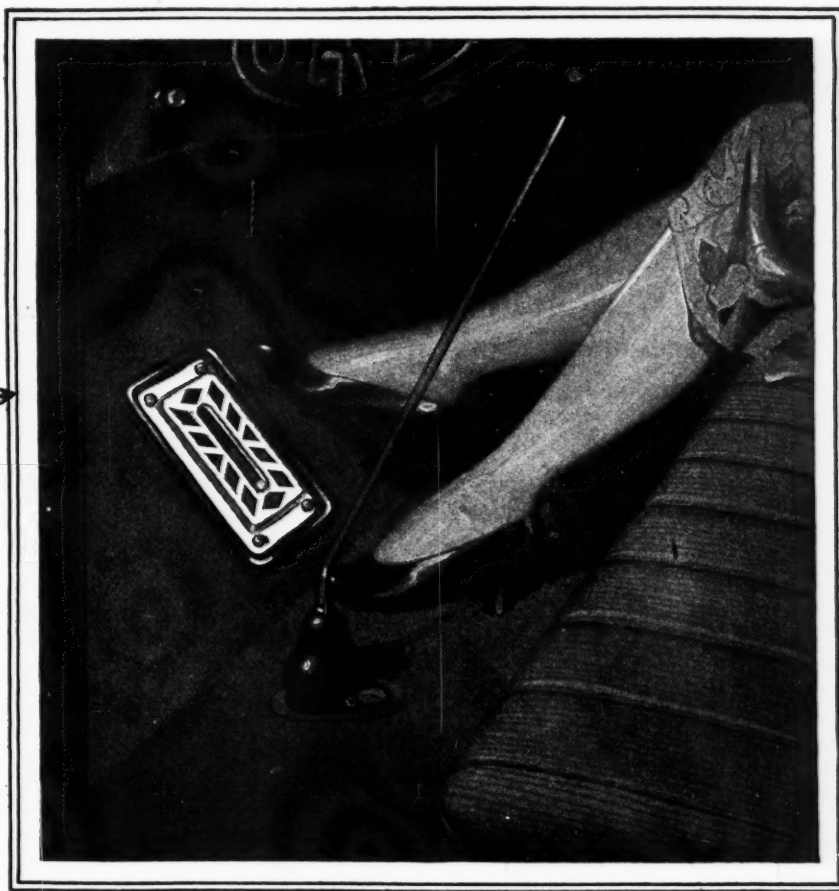
*That sensational development in carburetion, the Swan System, is made by this company's subsidiary The Swan Carburetor Company.*

# PERFECTION

NO CAR IS COMPLETE



# FOR HEATER SALES!



\$5 to \$8

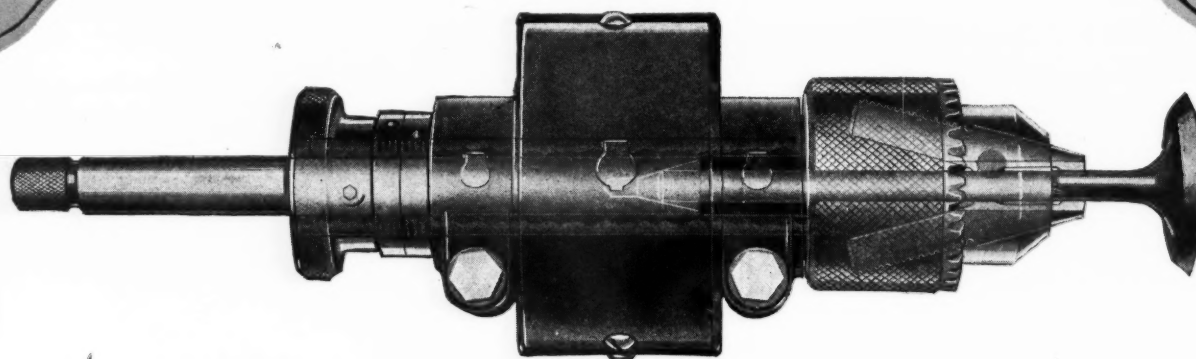
for Ford, Chevrolet,  
Dodge, Hudson.  
\$8 to \$10 for all  
other popular makes.

Also the standard exhaust  
type Perfection Heaters, as  
used by leading car manu-  
facturers, \$12.50 to \$20.00

# MOTOR CAR HEATERS

WITHOUT A PERFECTION HEATER.

# VALVE FACE GRINDING MACHINE



## Accuracy Guaranteed Within .001

**T**HE perfected chucking system in the Sioux Valve Face Grinding Machine assures a job as accurate as it is possible for human skill and engineering knowledge to make it.

The valve stem is gripped at the best part—just **above** the worn surface—the **only proper place** to chuck a valve so that its face can be ground in proper relation to the valve stem guide hole in the motor. The chuck is hardened and has six points of contact—two points on each of three jaws. The jaws are relieved in center and, for accuracy, are internally ground after assembly.

The floating aligner, with its cone-shaped center, aligns the valve and also serves as a stop, holding the valve stem rigidly centered in the chuck. It is adjustable for valve stems of different lengths.

Before you buy any valve face grinding machine get a demonstration of the "Sioux".

### Your Jobber Sells It

ALBERTSON & CO., SIOUX CITY, IA.

**SIOUX**  
Trade Mark Reg. U.S. Patent Office



# The Up-to-date Motor Car

## Clean Oil—Clean Air—No Dilution

Important factors which now add years  
to the motor car's life

Never in the history of the automobile has development been so marked and progress so swift as now.

Especially in those new devices which mean added economy and convenience to the owner, and longer life to the car, the industry is making tremendous strides.

Naturally dealers are interested to know about these new devices.

We are therefore offering free to interested dealers full information on any of the following timely subjects:

- 1 *Why air cleaners are used on the majority of cars, and the air cleaner's function.*
- 2 *Why oil filters are used on the leading makes of cars, and the oil filter's function.*
- 3 *The cause of and the effects of dilution and water in the crankcase.*

If you want to be fully informed on the new devices that are insuring the automobile new life, simply check the number in the coupon below which corresponds to the number of the subject on which you want information, and a bulletin will be sent you free.

AC Spark Plug Company, FLINT, Michigan

AC-SPHINX  
Birmingham  
ENGLAND

Makers of AC Spark Plugs—AC Speedometers—  
AC Air Cleaners—AC Oil Filters

AC-TITAN  
Levallois-Perret  
FRANCE

AC SPARK PLUG COMPANY, Information Division, FLINT, MICHIGAN

Gentlemen: I want to know more about the modern motor car and its improvements,  
and am especially interested in the subject I have checked here:

① ② ③

My Name is .....

Address .....

City .....

AC

SPARK PLUGS

AC

SPEEDOMETERS

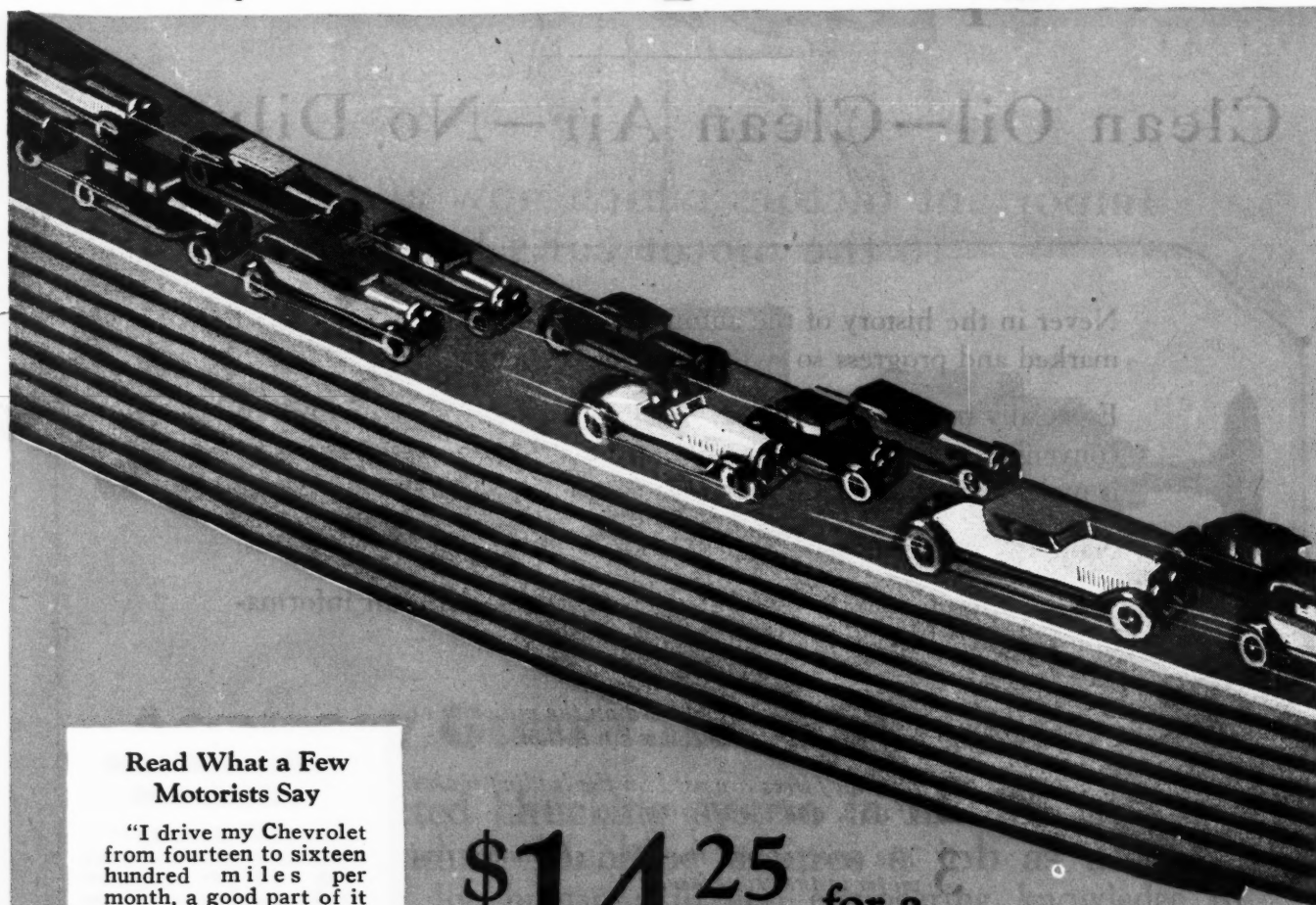
AC

AIR CLEANERS

AC

OIL FILTERS

# They're Capturing the



## Read What a Few Motorists Say

"I drive my Chevrolet from fourteen to sixteen hundred miles per month, a good part of it on country roads of all kinds. I find that the pimples and dimples in the roads are no obstacles to me as I glide over them as smoothly as if they were not there."

"I gave my set a very good try-out on my Dodge sedan and all I can say is—they do all you say they will do and MORE."

"Hexdees have produced a marked improvement in the riding qualities of my Buick."

"On my sedan your Hexdees have effectively stopped the pounding of front axle against the frame bumper which very frequently happened when using the devices which came with the car."

"They certainly make a world of difference in the riding of my Ford coupe."

**\$14<sup>25</sup>** for a  
Complete Set

**\$8<sup>75</sup>** for Fords

*Prices Slightly Higher, Denver and West*

# HEX

for



# "Riding Comfort" Market

**F**OR two outstanding reasons Hexdees are capturing today's tremendous market for "riding comfort"—(1) They do a double job—control both the downthrust and the rebound of springs without impairing normal spring action. (2) And they do this double job at startlingly low prices.

There are other reasons, too—Hexdees can be installed in thirty minutes, no holes to drill, no special fittings required—and when once

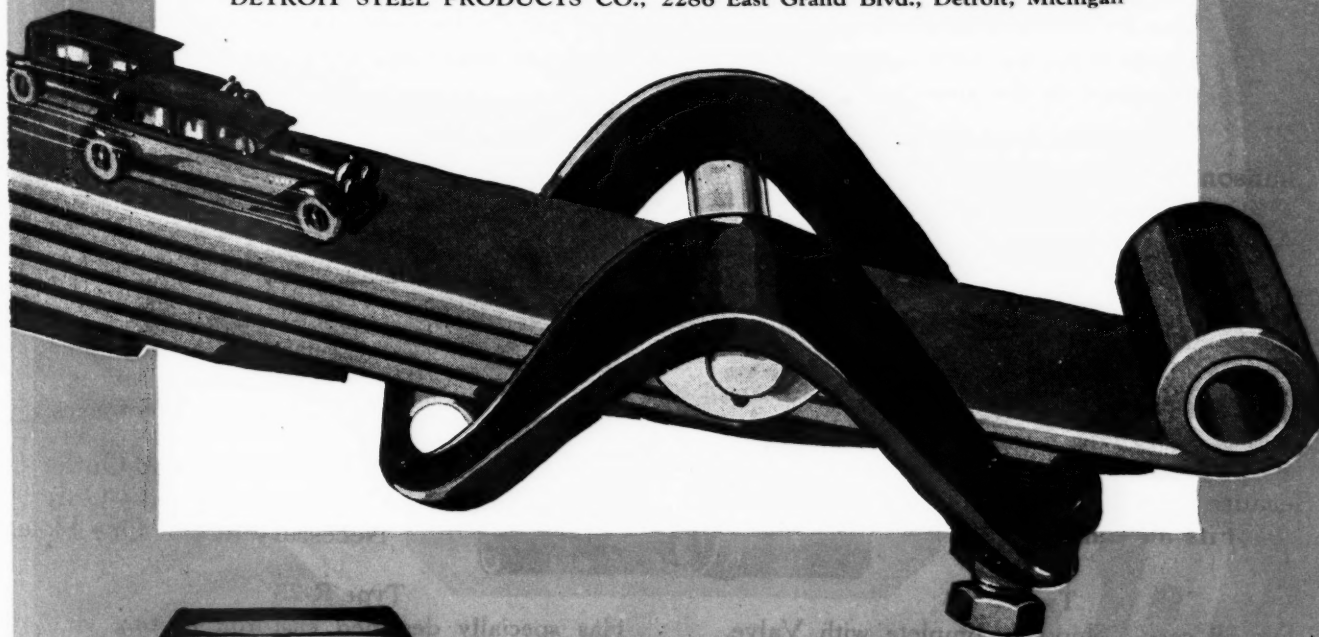
permanently adjusted they never need servicing.

## Dealers are "Cashing In"

Distributors and dealers everywhere are making decidedly worthwhile profits by taking advantage of the quick-turnover, low-stock features of the Hexdees proposition. Users are selling their friends—continually boosting the Hexdees demand.

A few distribution centers are still open. Write for complete details.

DETROIT STEEL PRODUCTS CO., 2286 East Grand Blvd., Detroit, Michigan

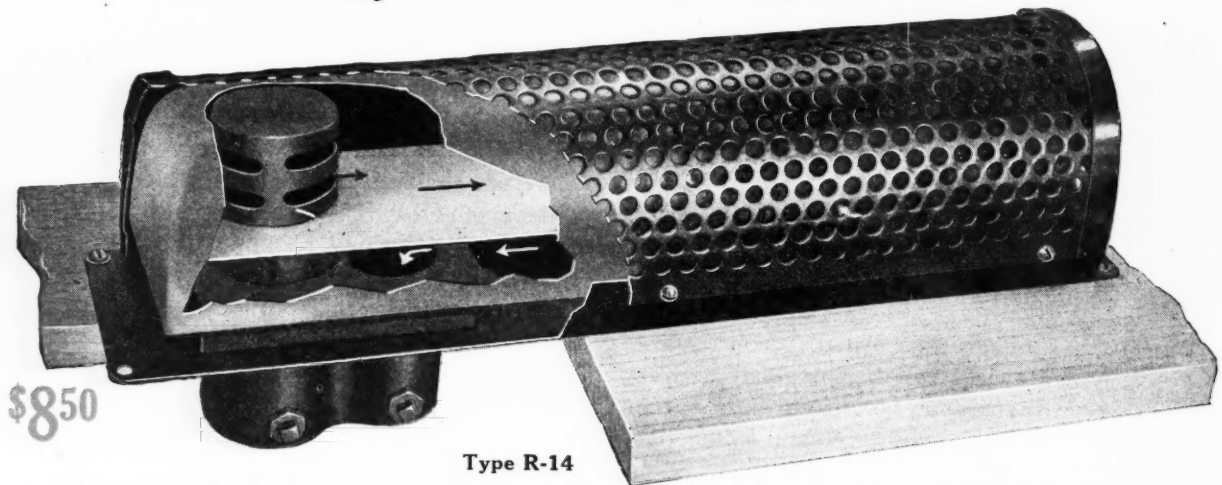


# DEES

## SPRING CONTROL

# Universal CHANSON Heater

Outselling all others because it is the  
only 100% Universal Heater!

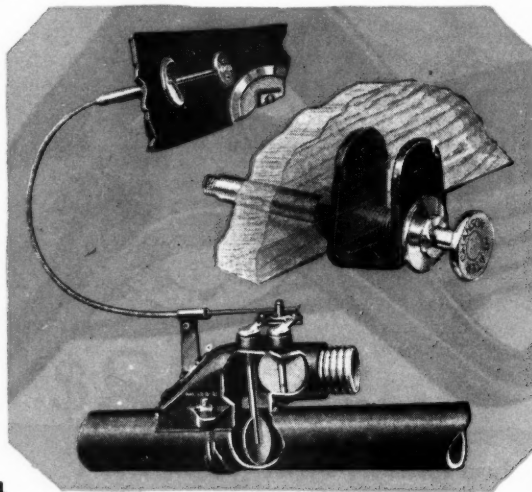


Type R-14

Can be installed in any model American built car—wherever the car owner wants it for his own comfort and convenience—at **positively** no extra inconvenience to the man installing it.

Chanson R-14 and R-25  
Heaters  
Are 100% Universal  
because  
They Can be Used as  
Toe-Board, Heel-Board  
or Rail Heaters  
In Front or Rear

Second  
Because One Size Valve  
Fits all Cars



Type R-14

Fits all cars. Shipped complete with Valve, Dash Control, Control Dash Clamp, Flexible Intake and Tail Pipe. Length over all 14 in. List \$8.50.

ORDER FROM ANY JOBBER!

Other Exclusive Features—  
Double-Chamber Pressed  
Steel Heating Element  
insures Instant Heat.

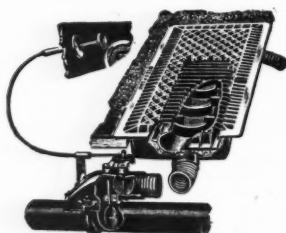
Cast-Iron Muffler Intake  
(patented) eliminates  
all Exhaust Noises  
No Odors—No Gases.

Both Intake and Outlet  
are at One End—Only  
Necessary to Cut One Hole.

Type R-25

Has specially designed cast-iron heating element with Chanson Baffle Plate construction. For large sedans. Length over all 25 in. Shipped complete. List \$15.00.

## A Complete Line of Efficient Heaters



### Models 1-F and 2-F

Two of the popular register type Chanson Heaters. Provided with satin finish aluminum hinged cover and pressed steel pan with clean-out door. Furnished complete. Model 1-F 18x8½ in.—List \$20.00. Model 2-F—11x8½ in.—List \$13.50.

**ILLINOIS IRON & BOLT CO.**  
Est. 1864

Chanson Devices Division  
Dept. 2118 Carpentersville, Ill.

## Mail This Coupon

Illinois Iron & Bolt Co. (Chanson Devices Div.)  
Dept. 2118, Carpentersville, Ill.

Please rush prices and discounts on your complete line of Chanson Heaters.

Name.....

Address.....

City..... State.....

Jobber's Name.....





## Builders of Business

**T**HE ever-increasing sales of *Gilmer* Fan Belts are the natural result of an unbeatable combination — a display cabinet that creates consumer demand plus a moulded rubber and cord construction that keeps the product sold.

With this *Gilmer* display cabinet on your counter you'll sell more fan belts than ever before. It keeps your stock always neat, easy to handle and within easy reach. And with the fan belts it holds, you can serve 98% of all makes of cars. Ask your jobber about it.

L. H. GILMER CO., Tacony, Philadelphia, Pa.

# Gilmer

Makers of the World's  
Best Known Fan Belts

# 100,000 AUTOMOTIVE TRADE

## *National* *Automobile Show Issues of* AUTOMOBILE TRADE JOURNAL *and* MOTOR AGE

Coverage of the greatest automotive trade audience ever reached by a business paper or a general magazine.

Editorially these two super issues will render a tremendous service to trade and industry. Each will be an automobile show in itself.

Every dealer, service station owner and garageman in the United States will welcome his copy. He will read it and keep it as a reference guide during the months that follow.

A relatively small percentage of the automotive tradesmen throughout the country will attend the New York and Chicago Automobile Shows.

But whether they attend or not, the two great Automobile Show issues of *Automobile Trade Journal* and *Motor Age* will be of high value in giving

# Chilton Class Journal



# Circulation

to all dealers, their sales and service executives, a true picture, not only of the National Shows themselves, but of the entire automotive industry, and the trends within the industry, which will guide them during the year that is just around the corner.

Present paid circulations of AUTOMOBILE TRADE JOURNAL and MOTOR AGE, combined, total 69,630 copies to the trade and industry. The 30,370 copies difference between 69,630 regular circulation and the

## Guaranteed 100,000 Copies Trade Coverage

of the forthcoming two National Show issues will include practically all the firms not now appearing as subscribers, who will receive their copies under stamps postage. *30.37% increase in circulation.*

### *No increase in rates to contract advertisers*

We desire to particularly stress the importance of this 100% trade audience as compared to a mixed consumer and trade audience. In our case the advertiser is assured that his message will reach and cover practically THE ENTIRE TRADE—not a major portion of circulation going to consumers, and a relatively small percentage to the trade. We guarantee coverage of

- the TRADE
- the whole TRADE
- and nothing but the TRADE

*Automobile Trade Journal*, National Shows issue Jan. 1, 1927. Last forms close Dec. 20, 1926.

*Motor Age*, National Shows issue, Jan. 6, 1927. Last forms close Dec. 31, 1926.

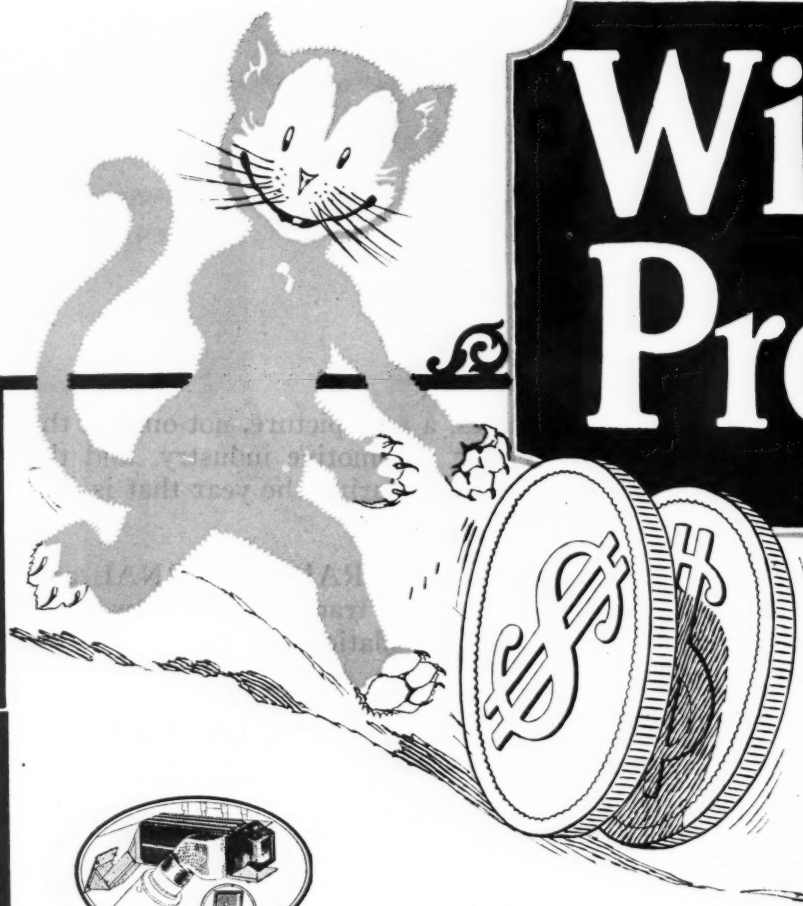
Advertising rates will be sent on request.

Early receipt of advertising copy will advance mutual interests.

AUTOMOBILE TRADE JOURNAL  
Chestnut and 56th Streets  
Philadelphia

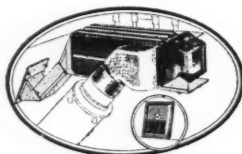
MOTOR AGE  
5 South Wabash Avenue  
Chicago

## Company Publications

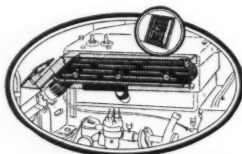


# Winter Profits

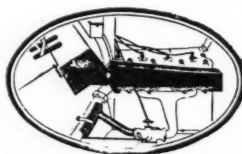
Red Cat  
Gets 'em  
for You



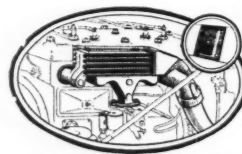
CHEVROLET, Cast Iron...\$6.00



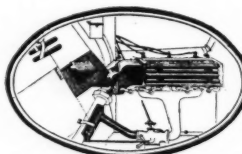
DODGE, Cast Iron.....\$9.50



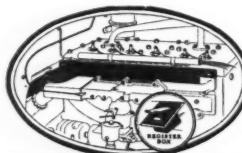
FORD No. 1, Sheet Iron...\$1.75



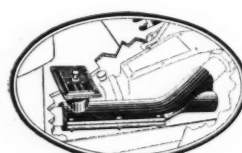
STAR, Cast Iron.....\$9.50



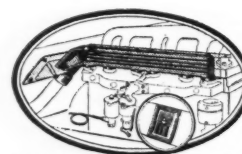
FORD No. 2, Cast Iron...\$6.00



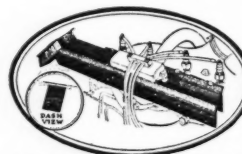
HUDSON, Cast Iron.....\$8.00



FORD No. 3, Cast Iron,  
for hot-spot equipped  
cars .....\$5.00



ESSEX, Cast Iron.....\$9.50



OVERLAND, Sheet Iron...\$3.00

O, Boy! How winter profits perk up when Red Cat is on hand to draw in the heater buyers.

The Red Cat Heater line—9 great models—is the most profitable you can tie to. Turns fast and nets real profits.

Cast-iron manifold type! more heat! quicker heating! easily installed! equipped with handy regulator!—that's why the Red Cat Heater sells fast ALL WINTER.

Put in a stock and feature it big—then, watch the dollars roll in.

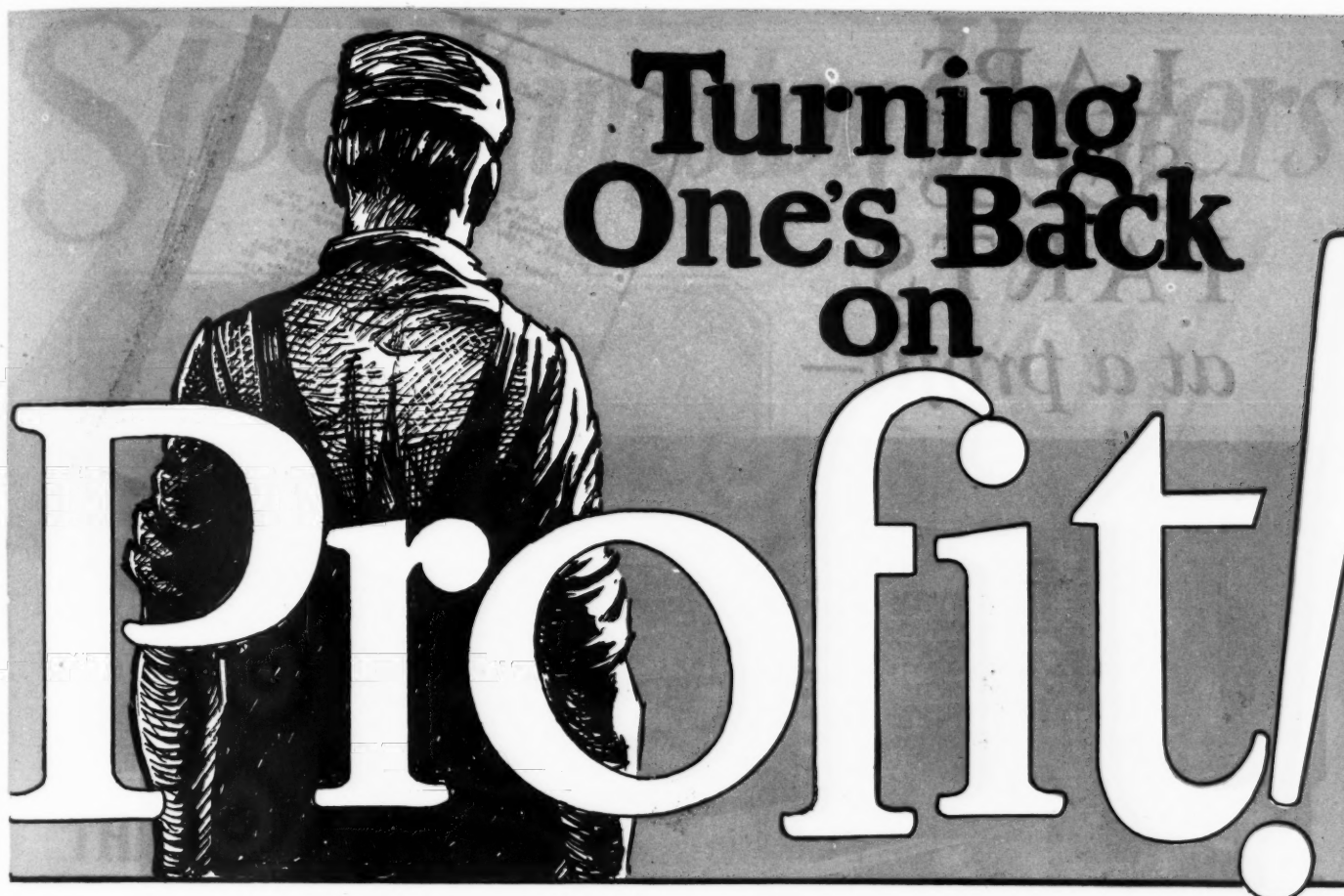
## WRITE for Complete Information

Get all the Red Cat facts. Just ask your jobber salesman. He'll tell you all about the Red Cat line and profits. Or, write direct to us.

G. A. ROTH MFG. CO., Hastings, Neb.

# Red Cat Heaters





**T**HERE are service stations, repair shops and equipment stores that seem to deliberately turn their backs on good profits by failing to take advantage of their customers' need of brake linings.

Whenever the repair man starts in to pay special attention to the brakes on cars brought to him, a noticeable increase in profit follows.

Brake Inspection Weeks all over the country are calling attention to the big percentage of cars whose brakes need relining. The condition exists everywhere—even right in your locality. We can help you secure these jobs for your shop.

Write for our very definitely organized Plan for Building up a Profitable Brake Relining Business.

MULTIBESTOS COMPANY, WALPOLE, MASS., U. S. A.



One of the Multibestos color pages in consumer magazines

# MULTIBESTOS

REG. U. S. PAT. OFF.

## BRAKE LINING

The Kind Most Car Makers Specify

**ALSO** Multibestos Taxitrux Brake Lining  
Multibestos 229 Transmission Lining for Ford Cars  
Multibestos Special Transmission Lining for Ford Cars

Multibestos Clutch Linings  
Multibestos No-Wire Transmission Lining for Ford Cars  
Multibestos Fibre Transmission Lining for Ford Trucks



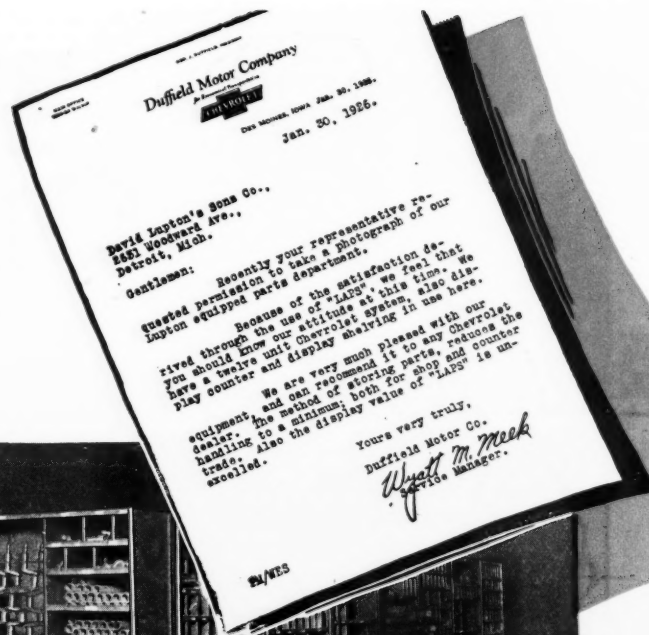
MULTIBESTOS COMPANY  
Dept. MA-10, Walpole, Mass.

Please send me details of the Multibestos Plan to increase my profits.

Name.....

Address.....

# LAPS SELLS PARTS at a profit—



[[ LAPS represents dollars invested in the Parts Department instead of the bank. This investment yields high interest in the form of Better Service and Increased Profits ]]

*because* it balances your stock, gives it good display, and puts system into your Parts Department service. A LAPS System reduces your capital investment in slow-selling items and keeps fast-selling numbers at demand level.

More than just a compact arrangement of steel bins, a LAPS System is a magnified parts book. It shows, at a glance, the quantities of parts you have, and the parts you ought to order. Each part lies in its own assembly where your

parts man can easily and quickly find it. There is a LAPS System built for the needs of your dealership and it is recommended by your factory service division. You should profit by the collective experience of almost 10,000 dealers who have shown that LAPS System makes the parts business pay.

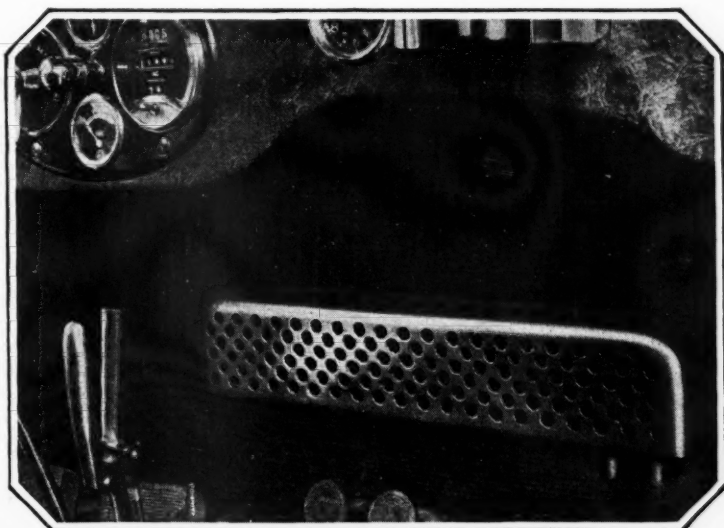
You want full value from your franchise. Let us know how many cars you service and we'll recommend—no obligation implied—the particular System that will fit your needs.

DAVID LUPTON'S SONS CO. • PHILADELPHIA AND DETROIT  
SALES OFFICE: 2631 WOODWARD AVENUE, DETROIT, MICHIGAN  
Sole Manufacturers of Lupton Auto Parts Storage Systems

# LUPTON AUTO-PARTS STORAGE

# Stock Kingston Heaters

# Now!



## THE KINGSTON UNIVERSAL

Complete, with eight feet of flexible metal tubing, ready to install on any car..... **\$8.50**

THE KINGSTON UNIVERSAL HEATER is the pioneer in universal types, and those now on the market offered in lieu of the KINGSTON are of necessity a year behind Kingston development. The new Kingston is better than ever—the heater that solves all problems. It fits against the vertical dash board, entirely out of the way, is simply and easily installed, and it HEATS. Thousands in use. Insist upon the KINGSTON, the first and best.

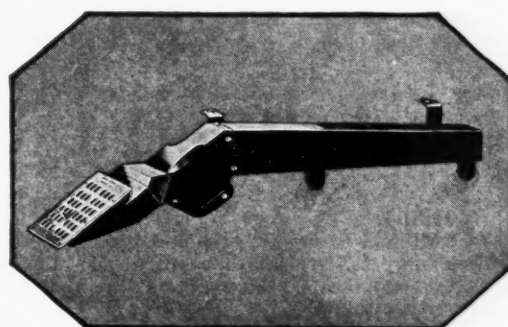
### The New Kingston Valve

Constructed after a new idea, and absolutely gas proof. No fumes can escape, and its operation is simple, constant and positive at all times—the guaranteed valve.



### The Saturday Evening Post

The famous Kingston line of heaters will be advertised vigorously throughout the fall and winter months in The Saturday Evening Post, and dealers should be ready to cash in on the big consumer demand thus created. Be sure to send for your supply of window and counter cards, follow-up literature and other merchandising aids. Remember, this will be a big KINGSTON year.



## THE MANIFOLD TYPE

Standard model for 1926 and earlier Fords. New 1927 model fits new Fords with hot spot manifolds without cutting exhaust pipe. **\$3.75**

The Kingston Manifold Heater for FORDS has led the market for years. It is well made, durable, adds to the appearance of the car and the installation is very simple. Has thousands of friends. Dealers should make certain that they are well stocked in preparation for the big rush on the first cold day.

### For the Chevrolet

An exceptionally fine model for this popular car—handsome, efficient, and priced right. **\$5.00**

The Kingston Chevrolet Model has been steadily gaining in popularity every year establishing a new record. We can recommend this heater strongly, and know that it will be a big seller this winter. Stock now.

Models also available for Dodge and Overland, of the same fine Kingston quality, listed at **\$5.00**

# KINGSTON

## CAR HEATERS





# A Market of Millions that hasn't even been scratched

**M**ILLIONS of cars—old and new. Millions of motorists at the wheel—listening these snappy mornings to coughing, sputtering motors—wondering why the smoothness of summer operation has left these motors over night.

Millions of "chokes" come to the rescue—flooding glass-like surfaces with raw gasoline—washing away the vital film of oil protection—bringing excessive dilution, fouled spark plugs, high gas consumption, extreme carbonization, corrosion and rapid cylinder wear.

Punishment! No motor built today, however perfect, can withstand months of such treatment.

Skilled automotive engineers agree—and you, yourself, know—that the greatest damage that can come to a motor, comes as a result of cold.

"60% to 75% of all damage to motors," says one leading service expert, "is the result of operating motors in cold weather without adequate radiator protection—where protection counts!"

"Eliminate excessive use of the choke," says another, "and you eliminate the underlying cause of most motor damage."

Pines Automatic Winterfront has been adopted as standard equipment on Packard "8," Peerless "8,"

Peerless De Luxe "6," Pierce Arrow, Willys-Knight Big "6" and Wills Ste.

Millions will notice this smart-look-money-and-trouble-saving device on these fine cars. Millions will see and read the big Pines Automatic Winterfront national campaign presenting proof to car owners everywhere that automatic radiator protection is a vital necessity.

## Here's how Pines Automatic Winterfront saves its own cost many times over.

- 1 It breaks car owners of the costly "choke" habit.
- 2 It cuts the "warming-up" period to seconds.
- 3 It prevents excessive crankcase dilution.
- 4 It prevents premature cylinder wear.
- 5 It increases gasoline economy.
- 6 It keeps the motor always at the correct temperature for highest operating efficiency.
- 7 It prevents corrosion and condensation.
- 8 It reduces carbonization.
- 9 It keeps the car warm inside.

—and does it all automatically. Put on in ten minutes without special tools or machinery.

This is your market of millions—that hasn't even been scratched. A profit opportunity that you will look far to equal in the field of automotive necessities.

Just tell a man a three-minute story of the advantages of Automatic Winterfront protection. If he believes in economy—if he wants smooth, summer-time efficiency in his motor the year 'round—he'll pay the price of Winterfront to get it—and he'll stay sold!

Pines Automatic Winterfront starts its work of saving motors and money at 60° Fahrenheit. And that's when Winterfront starts making money for the dealers who go after the business. Drop up a line today for the battery of Winterfront selling helps. It's an 8 months' proposition.

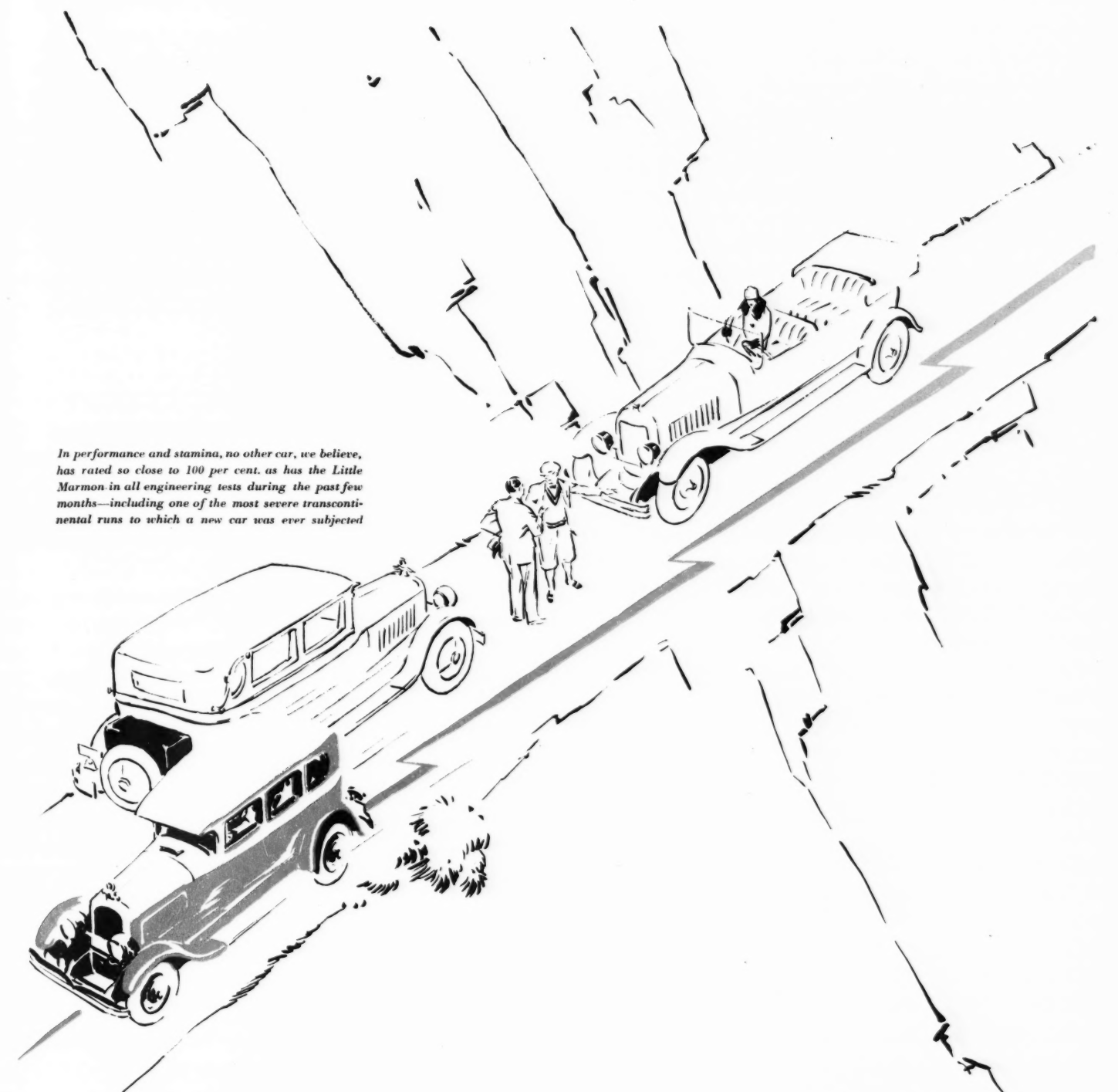
That means 8 months of business and 8 months of profits—ready when you say the word!

Claire, because makers of these fine cars refuse to take chances with cold.

## PINES WINTERFRONT It's Automatic

PINES WINTERFRONT CO., 408 N. Sacramento Blvd., Chicago, Ill.

Wholesale distributing connections everywhere.



*In performance and stamina, no other car, we believe, has rated so close to 100 per cent. as has the Little Marmon in all engineering tests during the past few months—including one of the most severe transcontinental runs to which a new car was ever subjected*

*The Marmon quality line, with a complete range of body styles and prices on the Little Marmon and on the Series 75 Large Marmon, will penetrate five basic fine car markets, offering dealers a coverage of the entire fine car field under one name and one standard of quality manufacture.*

*The little*  
**MARMON**

¶ see next page ¶

# *The little* MARMON

—a quick, wristy little jewel of a car that can be readily parked in the smaller curb spaces

—not merely a small car as it is known today, but very smart, very fast, very economical in fuel consumption—and comparable in luxury, distinction, materials and workmanship with the finest and most expensive cars produced anywhere in the world.

In many families it will serve as a small ultra-quality second car, as a worthy stable-mate of larger cars in the private, two-car garages throughout the country.

But it will be more than a town car or country club type of car. It has the stamina to meet any motoring situa-

tion. As such, at its price, it will unquestionably also be the choice of those who maintain only one automobile.

The ratio of power delivered per cubic inch of piston displacement is amazing. In fact it delivers more horse power per cubic inch than any motor yet designed. (This of course does not include racing motors.)

The decorative treatment of interiors is new and distinctive.

It is not to be confused with the very worthy low priced and medium priced cars of the present day. Both in performance and distinction it is just as expressive of a person's tastes as the biggest and most luxurious car—really a fine car several sizes smaller.

*The Little Marmon is now being shown, by appointment, to all interested distributors and dealers, at the factory. Please write or send the attached card in advance so as to meet with your convenience and ours.*



## MARMON MOTOR COMPANY

Indianapolis, Indiana

We are interested in seeing the Little Marmon in a private, prior showing at the factory. It is understood that this request is to be held confidential.

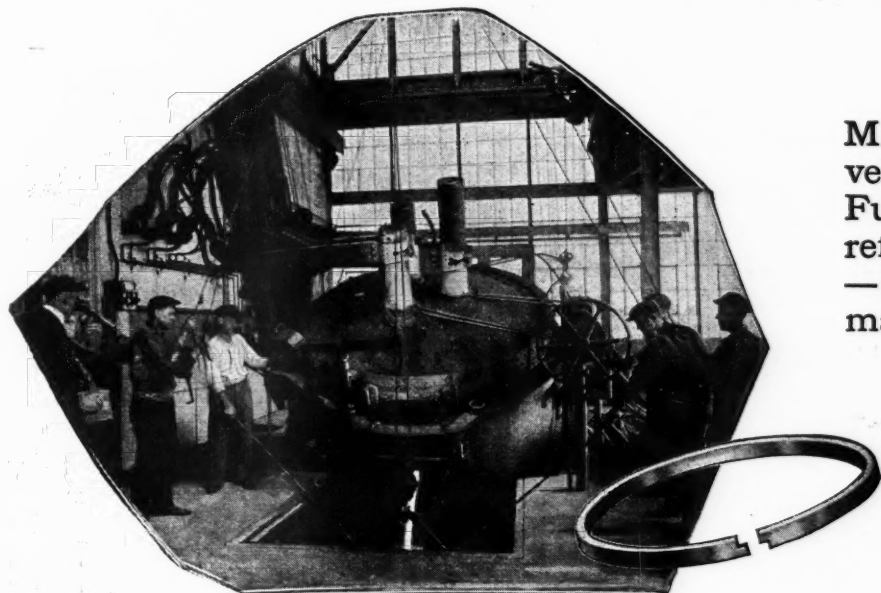
Firm Name \_\_\_\_\_

By \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



# McQUAY-NORRIS SNAP RINGS



McQuay-Norris has developed the only Electric Furnace for melting and refining piston ring iron—the finest piston ring material.

## **Why McQuay-Norris Rings Are More Accurate, Uniform, Dependable**

**Fluid gauged for side accuracy.**

**Face plate gauged for perfect flatness—  
“free from snakiness.”**

**Ring gauged and feeler gauged for end clearance.**

**Light gauged for cylinder wall contact.**

**Scleroscope tested for hardness.**

**Dial gauged for correct thickness.**

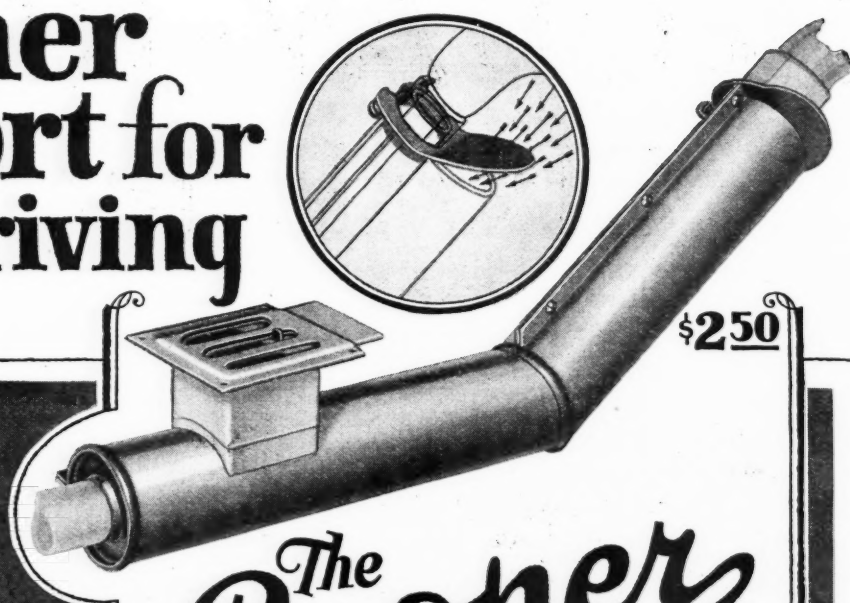
**There is an inspection test after each manufacturing operation.**

**Insist on McQuay-Norris Snap Rings for Perfect Satisfaction**

*The Complete* **McQUAY-NORRIS** *parts line*  
**PISTON RINGS-PISTONS-PINS-BEARINGS**

McQUAY-NORRIS MANUFACTURING COMPANY. General Offices: ST. LOUIS, U. S. A.  
Factories: St. Louis, Indianapolis, Connerville, Ind.; (Two) Toronto, Canada

# Summer Comfort for Winter Driving



## The Cooper Heater For Fords

Now makes possible "Summer Comfort for Winter Driving." Millions of Ford cars are still heaterless because no other manufacturer has produced a heater to completely satisfy the demands of Ford owners.

The new Cooper Heater for Fords is easy to install, positive in operation, compact, odorless and so designed that one style fits all models.

### Why Winter Profits Come Easier with The Cooper Heater

Neat, simple installation—requires only one-half hour at the most.

One model fits all Ford cars.

Does not interfere with exhaust manifold, nor clutter up the motor block.

Permits removal of floor boards without interfering with heater.

Clean heat—no carbon monoxide gases.

Volume of heat greater than actually needed.

Instant heat—the Cooper begins to function immediately.

Patented deflector insures proper amount of clean, fresh air being driven through the heater.

Attractive in appearance—the Cooper is Duco finished in olive green.

Light in weight—the Cooper weighs only 2 pounds complete.

Low in price—the Cooper sells for **\$2.50**, including floor register and nicked mat binder.

Guaranteed by Cooper to give **complete** satisfaction to every Ford owner.

Assure now, your share of winter Ford Heater Profits. See your jobber, or write us direct. An attractive display stand **FREE** to every dealer ordering ten or more heaters.

### COOPER MANUFACTURING COMPANY

495 South First Avenue

MARSHALLTOWN, IOWA

Sales Representatives: THE FULTON COMPANY, Milwaukee, Wisconsin

# FITS ALL MODELS

The Columbus McKinnon Chain Co.  
Columbus, Ohio.

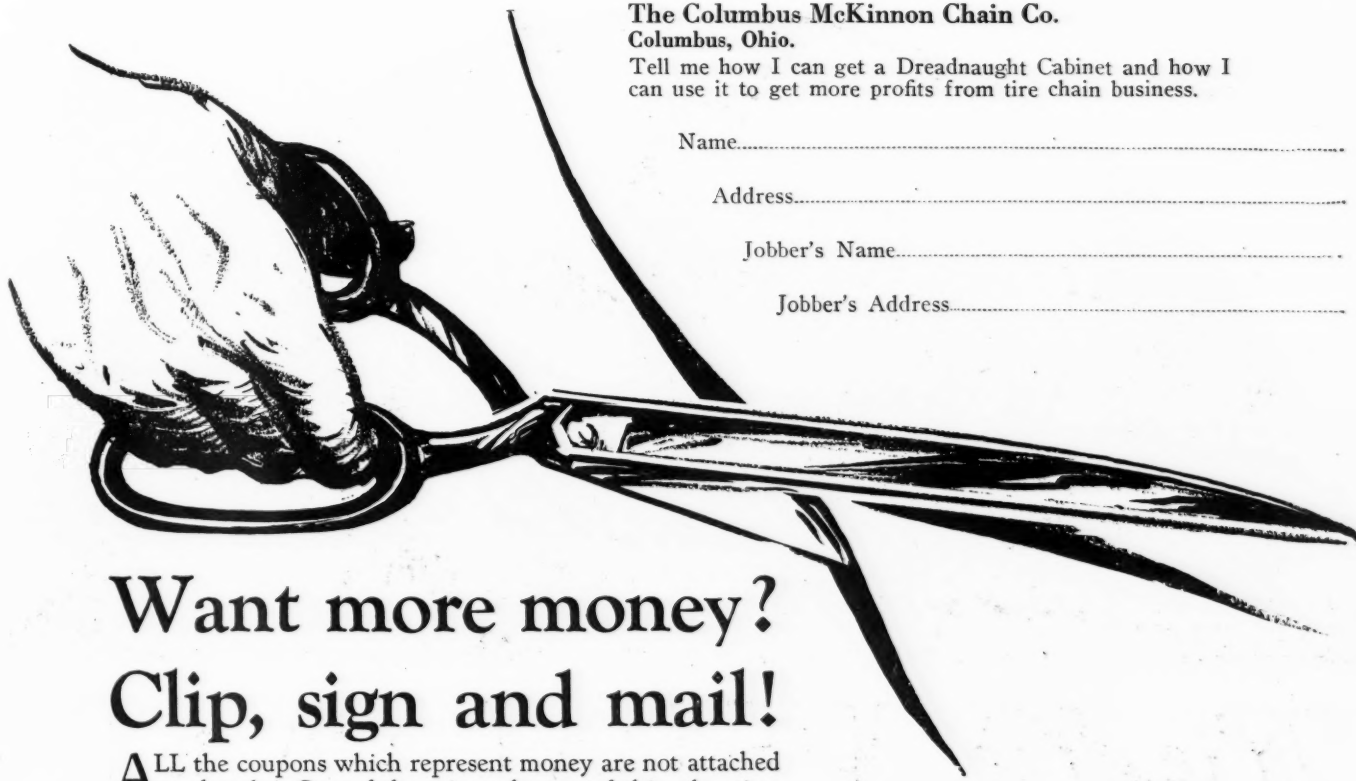
Tell me how I can get a Dreadnaught Cabinet and how I  
can use it to get more profits from tire chain business.

Name.....

Address.....

Jobber's Name.....

Jobber's Address.....



## Want more money? Clip, sign and mail!

ALL the coupons which represent money are not attached to bonds. One of them is at the top of this advertisement.

This coupon opens the way for you to sell tire chains in the modern, **profitable** way. In fact many dealers now making substantial profits from Dreadnaught Tire Chains would not be selling chains at all if they had not discovered the Dreadnaught plan.

First—Dreadnaught Tire Chains are sturdy, dependable chains with the patented Blue Boy Fastener which makes Dreadnaughts easy to put on, easy to take off.

Every set of Dreadnaught Tire Chains comes in a neat carton, (not a bag), with the size plainly marked.

The Dreadnaught "Ask 'Em to Buy Cabinet" is a constant reminder of the need for chains. The stock is so well displayed that the customer waits on himself!

That's the Dreadnaught plan and it keeps the profit in chain sales for every dealer.

Now use your shears, pen and stamp on that coupon and see how profitable it is to be a Dreadnaught dealer.

### The Columbus McKinnon Chain Co.

GENERAL SALES OFFICE: COLUMBUS, OHIO

PLANTS: Lebanon, Pa., Columbus, Ohio,  
Tonawanda, N. Y.

IN CANADA: McKinnon Columbus Chain Co., Ltd.  
St. Catharines, Ontario

Manufacturers of Inswell Electric Welded Chain for  
Industrial Purposes



The Dreadnaught "Ask-'em-to-Buy" Cabinet which brings greater sales and profits to the merchant who installs it.

# DREADNAUGHT TIRE CHAINS

FOR BALLOONS, CORDS AND TRUCK TIRES





# Rie Nie PEDAL PANTS

## Automotive Products

Air Brakes  
 All in One Dressing  
 Battery Paint  
 Bearing Blue  
 Blowout Patches of Balloon Tires and  
 High Pressure Tires  
 Clutch and Brake Compound  
 Cowl Ventilator Gaskets  
 Enamel (Air Brakes)  
 Enamel (Rub On)  
 Fan Belts  
 Friction Tape  
 Gasket Cement  
 Gasket Shellac Compound  
 Graphite (Flake and Powdered)  
 Leather Dressing  
 Lucky Star Casing Patch  
 Metal and Nickel Polish  
 Patches (Repair Kits)  
 Pedal Pants  
 Polish (Auto Body)  
 Radiator Cement  
 Red Tip Blowout Patch  
 Radiator Hose  
 Rubber Cement (Cold Patching)  
 Rim Paint  
 Rubber Filler and Cement  
 Rubber Splicing Compound  
 Spring Lubricant  
 Tire Mica  
 Tire Paint  
 Tire Valc  
 Valve Grinding Compound  
 Varnish (Clear Auto)

For Fords, Oaklands, Overland "4", Chevrolets, Pontiacs, Overland "6", Dodges, Stars, Overland Whippet.

## SNAPPY SELLERS

WIDE AWAKE DEALERS are snapping up Rie Nie Pedal Pants in preparation for rapid selling with the first chill wind. When a motorist sees Pedal Pants displayed on your counter or in your window he sees at a glance that *here is the accessory he has been looking for.*

There is a real need for Pedal Pants in your territory and every auto driver wants them. Many of your customers are stuffing newspapers and cotton waste in floor openings around brake and pedals. Sell them Rie Nie Pedal Pants and

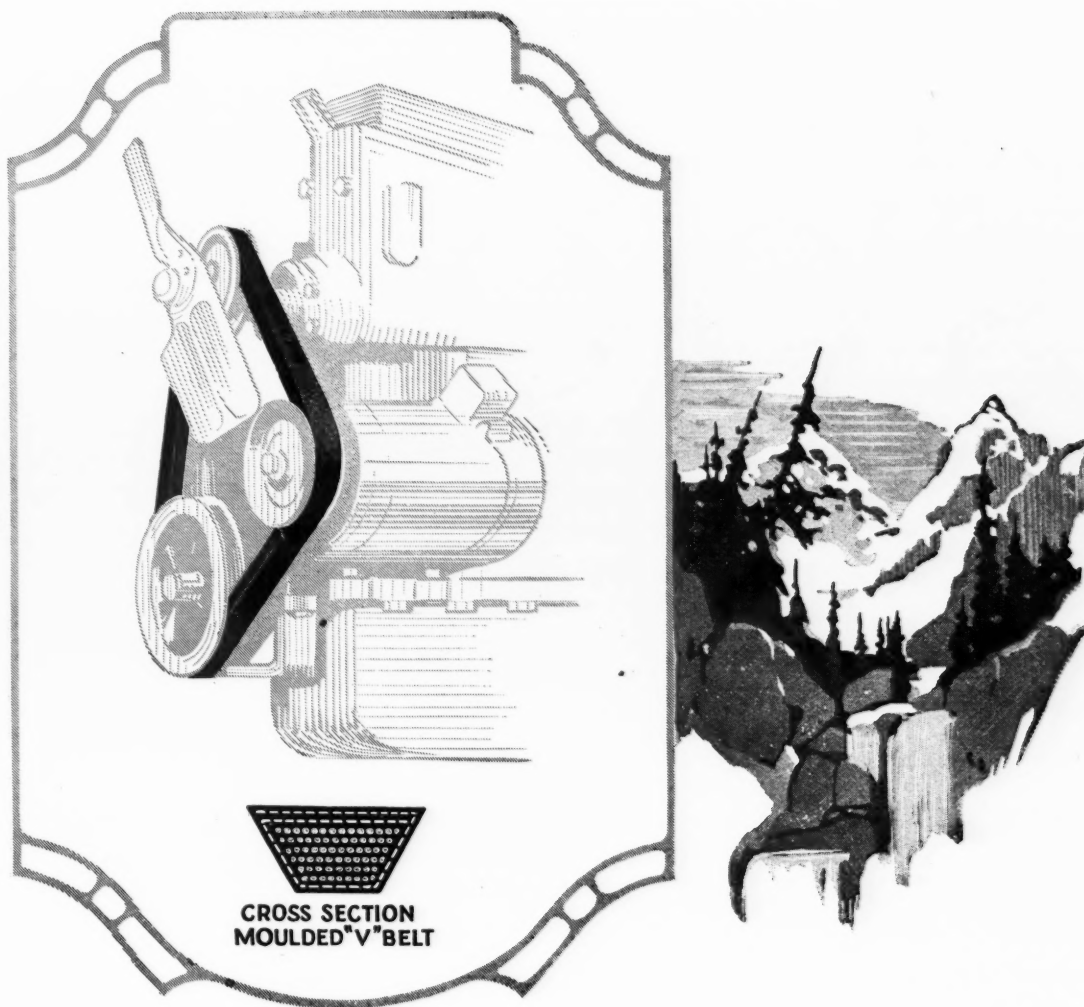
## Make Money for Yourself!

Considering the tremendous comfort a motorist receives from having his car equipped with Rie Nie Pedal Pants, the price is very low—with a large margin of profit to you.

*Ask Your Jobber about Pedal Pants Today!*

**DURKEE-ATWOOD®**  
MINNEAPOLIS, U.S.A.

Manufacturers of Quality Automotive Products That Sell Since 1910



### Does Quality Pay?

We think here is the answer:

Three of our customers have just reported September sales of Gates Vulco Belts, 52%, 71%, and 86% larger than for the same month last year. *Quality does* build business.

*"The Standardized Fan Belt"*

# GATES VULCO BELTS

*"Made by the World's Largest Manufacturers of Fan Belts"*

# SOON

120" wheelbase 6 Sedan ..... \$1195  
60 m. p. h. capacity

125" wheelbase Straight 8 Sedan. \$1495  
75 m. p. h. capacity

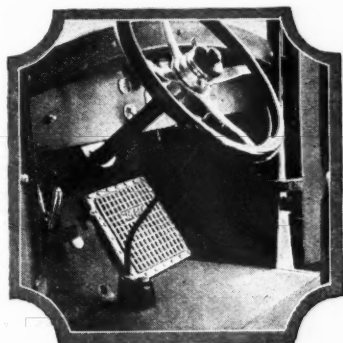
*An old line company of great financial strength will soon  
make public a most sensational announcement.*

*Dealers and distributors are invited to  
write at once for complete infor-  
mation. P. O. Box 426*

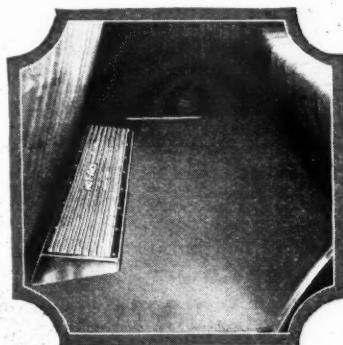
*Detroit, Mich.*



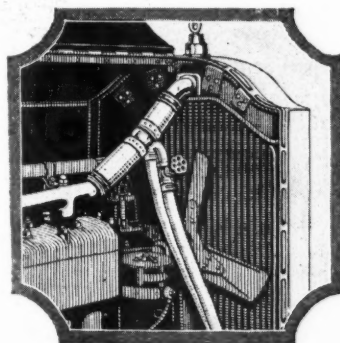
# A Revolutionary Advance in Motor Car Heating



*Liberal Heat*



*at a Liberal Price*



*with a Liberal Profit  
for the Dealer*

**M**OT-ACS takes about one-twentieth of the HOT WATER that circulates round the Motor Block and sends it (by simple hose connections) speeding through the Heater and thence back into circulation again.

## *No Gas, No Odors, No Burning*

The hot water, moving through the MOT-ACS system at 5-feet-per-second, is constantly held at an even temperature, producing the healthiest, pleasantest character of heat imaginable.

*Uniform Heat even at Low Speeds.* Absolutely NO trouble. Heats up rapidly, and retains heat while car is parked and motor not running. Easily turned on or off.

*There is no possibility* of gas, odors, burning heat, or stifling closeness.

## *Only Two Models to Carry*

Quick, easy installation—45 to 75 minutes! Only two models for the Dealer to carry.

And *NO after service!* Simple construction. Positive operation. Nothing to adjust. No sticking valves, no carbon trouble, no springs or moving parts. Positively *nothing* to get out of order.

## *Installation*

Far easier and less expensive than for other heaters. No cutting out of floor boards. No cutting of exhaust pipe or pipe connections.

Department A

MOT-ACS, Inc., 42 Broadway, New York City

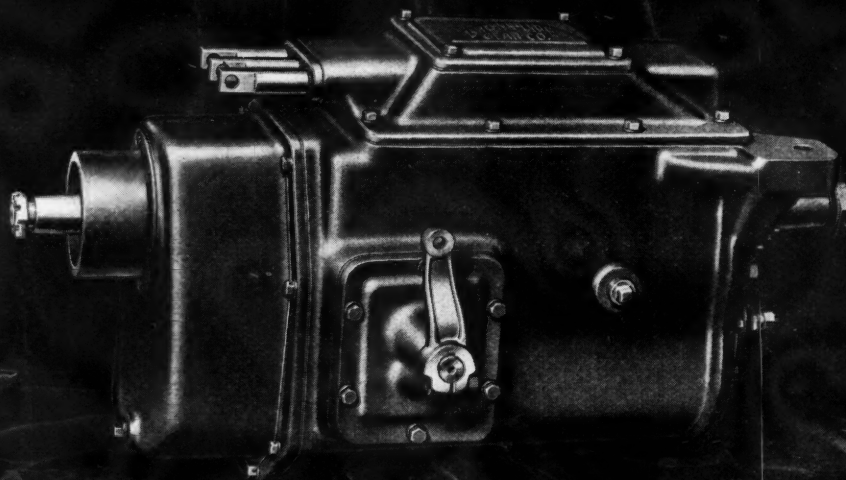
THERE IS  
JUST ONE  
PRACTICAL,  
SAFE,  
CLEAN  
AND  
ODORLESS  
METHOD  
OF  
HEATING  
THE  
INTERIOR  
OF A  
MOTOR  
CAR—  
AND  
THAT IS  
BY  
RAPIDLY  
CIRCULATING  
HOT  
WATER  
—IN  
OTHER  
WORDS

WITH A  
MOT-ACS  
HEATER

# MOT-ACS

TRADE MARK REG. U. S. PAT. OFF.

*The Only*  
**HOT WATER HEATER  
for AUTOMOBILES**



## The 7-Speed Transmission Increases Truck Earnings

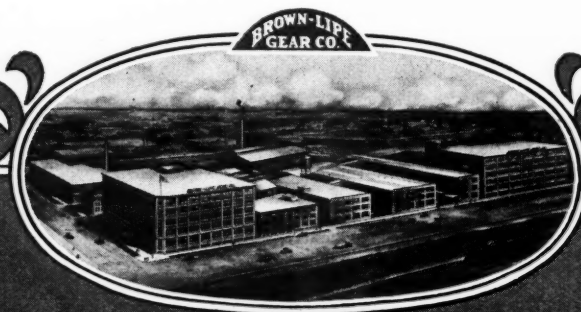
**B**E Sure that your next heavy duty truck is equipped with this Seven-Speed transmission. You then can haul heavier loads, go where another truck cannot, and make more trips a day—all with less strain and wear on the truck and its parts.

The lowest of the seven forward speeds lets you use full engine power safely when starting where traction is poor and enables you to go up previously "unmakable" grades. The highest speed carries you at touring rate over smooth stretches, and

the five intermediate speeds afford proper gear selections for all variations in road or traffic conditions.

Also, there are two speeds in reverse --- one materially lower than normal, which allows you to back through otherwise impassable places.

Most leading truck builders have adopted our Seven-Speed transmission as standard for heavy duty models. It is equally available to all other builders. You need only to specify "with Seven-Speed transmission" when ordering your truck.



**BROWN-LIPE GEAR CO. - Syracuse, N.Y.**

## Progressive Automobile Merchandisers!

What line offers more?

How many offer as much?

Three chassis sizes—six and eight cylinder types—all body types—both standard and custom.

Price range covering the profitable market from \$2,000 to \$12,000—a reputation for quality that is over a quarter century old.

Junior Eight  
\$1785 to \$2285  
Five Body Types

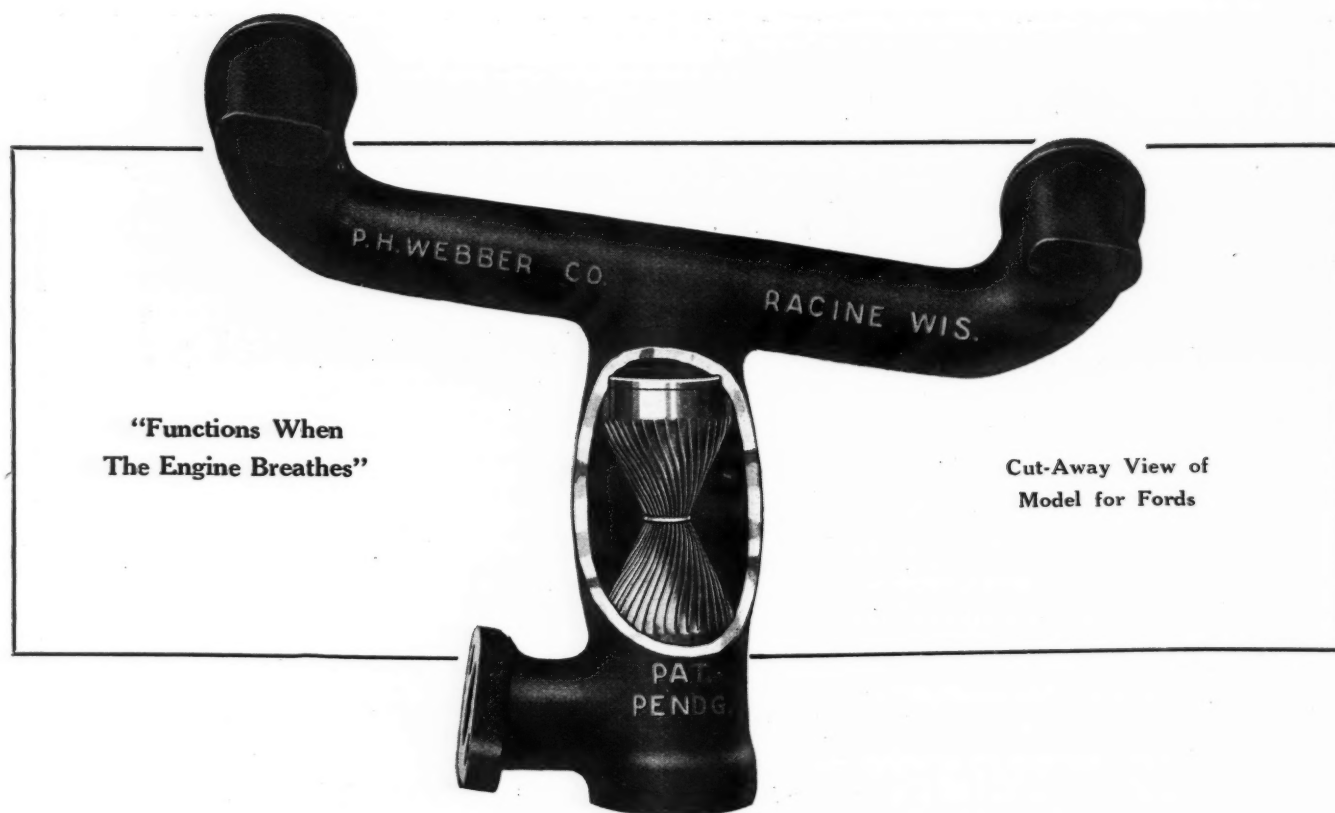
Model 90  
\$5500 to \$7500  
With Custom Built Bodies  
*f. o. b. Bridgeport*

Model 48, Series 10  
\$7400 to \$12,000  
With Custom Built Bodies

LOCOMOBILE COMPANY OF AMERICA, INC.  
BRIDGEPORT, CONN.

*The Best Built Car in America*  
**Locomobile**





## Put One of These On Your Counter and Watch The "BAT" Suction Super-Charger SELL!

With the coming of Fall and Winter there is more interest than ever in "BAT" Suction Super-Chargers. Sales are increasing faster each week, in preparation for better engine operation under adverse cold weather conditions.

With "BAT" Suction Super-Charger installed there is easier starting, a minimum of oil dilution, no backfire, and less fuel consumption. Engines operate efficiently, as in summer. Mechanical inconveniences due to cold are eliminated—and "BAT" Sales continue to grow.

Take advantage of this all season seller. Ask about the cut-away display. Write for your copy of the booklet: "Supercharging". Here are winter profits that pay.

*Some territory still available for distributors.  
Get in touch with us.*

### P. H. WEBBER COMPANY

*Racine Industrial Plant Building No. 12*

**RACINE,**

**WISCONSIN**

MANUFACTURED AND SOLD UNDER THE LICENSE OF P. J. F. BATENBURG, RACINE, WIS.



# Big Demand~Quick Supply

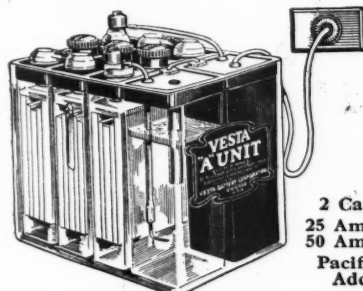


Vesta  
Trickle  
Charger  
\$10  
Pacific  
Coast \$10.50



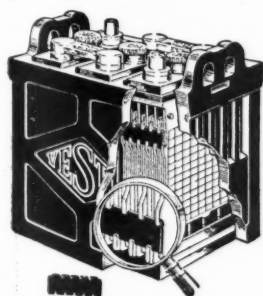
Vesta  
Quality  
Radio  
Tubes

\$2.00 \$2.25



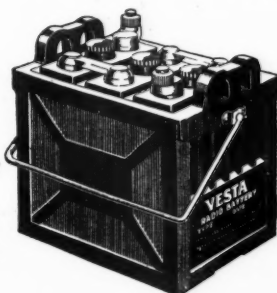
2 Capacities  
25 Amp. \$25.00  
50 Amp. \$27.50  
Pacific Coast  
Add \$1.50

Vesta Radio "A" Unit—  
3-in-one, "A" Battery, Trickle Charger and  
Built-in Hydrometer



Vesta  
Isolator  
Battery  
The Highest Quality  
Automobile Battery

Vesta  
Radio  
"A"  
Battery  
The  
Highest  
Quality  
for Radio



New Vesta Broadcasting  
Station WFKB  
Tune in Vesta Broad-  
casting Station—  
W F K B—on 217.3  
meters—Chicago—  
6:30 to 8 and 9 to  
10:30 every week day  
evening—EXCEPT  
MONDAY. Sundays  
2:30 to 4:00 P. M.  
Central Standard  
Time.

## Vesta Auto-Radio Products

Vesta Auto and Radio Batteries—and the new Vesta Radio Units—Trickle Charger, Radio "A" Power Unit—and Tubes—are among the Big Sellers. The nation-wide newspaper and magazine advertising campaign is moving Vesta products in a lively manner. Vesta distribution—dealer supply—is highly perfected. These 45 live-wire Centrals are so located that dealers are never more than a few hours distant and orders are filled quickly. The big season is now on!

### There's a Vesta Central Near You

#### Eastern

ALBANY, N. Y.  
ALLENTOWN, Pa.  
BOSTON, Mass.  
BRIDGEPORT, Conn.  
BALTIMORE, Md.  
BUFFALO, N. Y.  
BROOKLYN, N. Y.  
HARRISBURG, Pa.  
NEWARK, N. J.  
NEW YORK, N. Y.  
PITTSBURGH, Pa.  
PHILADELPHIA, Pa.  
WASHINGTON, D. C.

Albany Motor Specialty Corp.  
J. H. McCullough & Son  
Guaranty Distributing Co.  
Battery & Electric Service Co.  
Automotive Electric Shop  
J. Roy Stains, Inc.  
J. H. Berkman, & The Benzer Corp.  
J. H. McCullough & Son  
Essex Storage Battery & Supply Co., Inc.  
P. J. Durham Company, Inc.  
Axwell Equipment Co.  
J. H. McCullough & Son  
Leeth Brothers

421 Orange St.  
1042 Hamilton St.  
682 Beacon St.  
1412 Park Ave.  
23 W. Mt. Royal Ave.  
1210 Main St.  
Myrtle & Cooper Ave.  
19 N. Cameron  
40-44 William St.  
244 W. 49th St.  
240 Second Ave.  
257 N. Broad St.  
1307 L St., N. W.

#### Southern

ATLANTA, Ga.  
JACKSON, Miss.  
KNOXVILLE, Tenn.  
LITTLE ROCK, Ark.  
LOUISVILLE, Ky.  
MEMPHIS, Tenn.  
NASHVILLE, Tenn.  
NEW ORLEANS, La.  
OKLAHOMA CITY, Okla.  
RICHMOND, Va.  
SAN ANTONIO, Texas

Southern Motor Equipment Co.  
Orgill Brothers Co.  
"75" Tire Co.  
O. D. Tucker IV & Co.  
Louisville Auto Supply Co.  
Orgill Brothers Co.  
J. I. Blair Co.  
Walther Battery & Equip. Co.  
J. B. Burwell Supply Co.  
Benton-Bailey Co.  
Southern Equipment Co.

216 Spring St.  
Depot & Williams St.  
209 W. Third St.  
754 S. First St.  
32 West Calhoun St.

722 Howard Ave.

323 N. Broadway

#### Middle West

CHICAGO, Ill.  
CINCINNATI, Ohio  
CLEVELAND, Ohio  
COLUMBUS, Ohio  
DECATUR, Ill.  
DETROIT, Mich.  
GRAND RAPIDS, Mich.  
DETROIT, Mich.  
GRAND RAPIDS, Mich.  
KANSAS CITY, Mo.

MINNEAPOLIS, Minn.  
OMAHA, Neb.  
ST. LOUIS, Mo.  
TERRE HAUTE, Ind.  
TOLEDO, Ohio

Vesta Battery Corp., Factory  
The Fisher-Aeschbach Co.  
Vesta Battery Sales Co.  
Schaefer Bros. Auto Supply Co.  
Fred Campbell Auto Supply Co.  
Radio Distributing Co. (Radio Products)  
Radio Distributing Co. (Radio Products)  
Auto Electric & Service Corp.  
Auto Electric & Service Corp.  
The Faeth Company  
Uptown Store  
Reinhard Brothers Co., Inc.  
W. J. Powers Co.  
Fred Campbell Auto Supply Co.  
Fred Campbell Auto Supply Co.  
The Fort Meigs Electric Co.

2100 Indiana Ave.  
217 E. Second St.  
1801 E. 21st St.  
139 E. Gay St.  
332 E. Main St.  
51 Selden Ave.  
45 Pearl St.  
91 Selden Ave.  
45 Pearl St.  
1117 W. 8th St.  
1617-19 Grand Ave.  
11-17 S. 9th St.  
2212 Harney St.  
2806 Locust Blvd.  
656-8 Walnut St.  
Detroit and Norwood Sta.

#### Rocky Mountain and Pacific Coast

DENVER, Colo.  
LOS ANGELES, Calif.  
PORTLAND, Ore.  
SALT LAKE CITY, Utah  
SAN FRANCISCO, Calif.  
SPOKANE, Wash.

The Equipment Service Co.  
McClelland-Felthouse Corp.  
James P. Morrell & Co., Inc.  
The Salt Lake Hardware Co.  
McClelland-Felthouse Corp.  
Spokane Battery & Ignition Co.

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1358 S. Figueroa St.  
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515-517 Eddy St.  
1201 W. Sprague Ave.

VESTA BATTERY CORPORATION, 2100 Indiana Ave., Chicago

## VESTA AUTO-RADIO PRODUCTS

Vesta for Vitality

Makers of Vesta Automobile Batteries—Quality Products For Over 29 Years

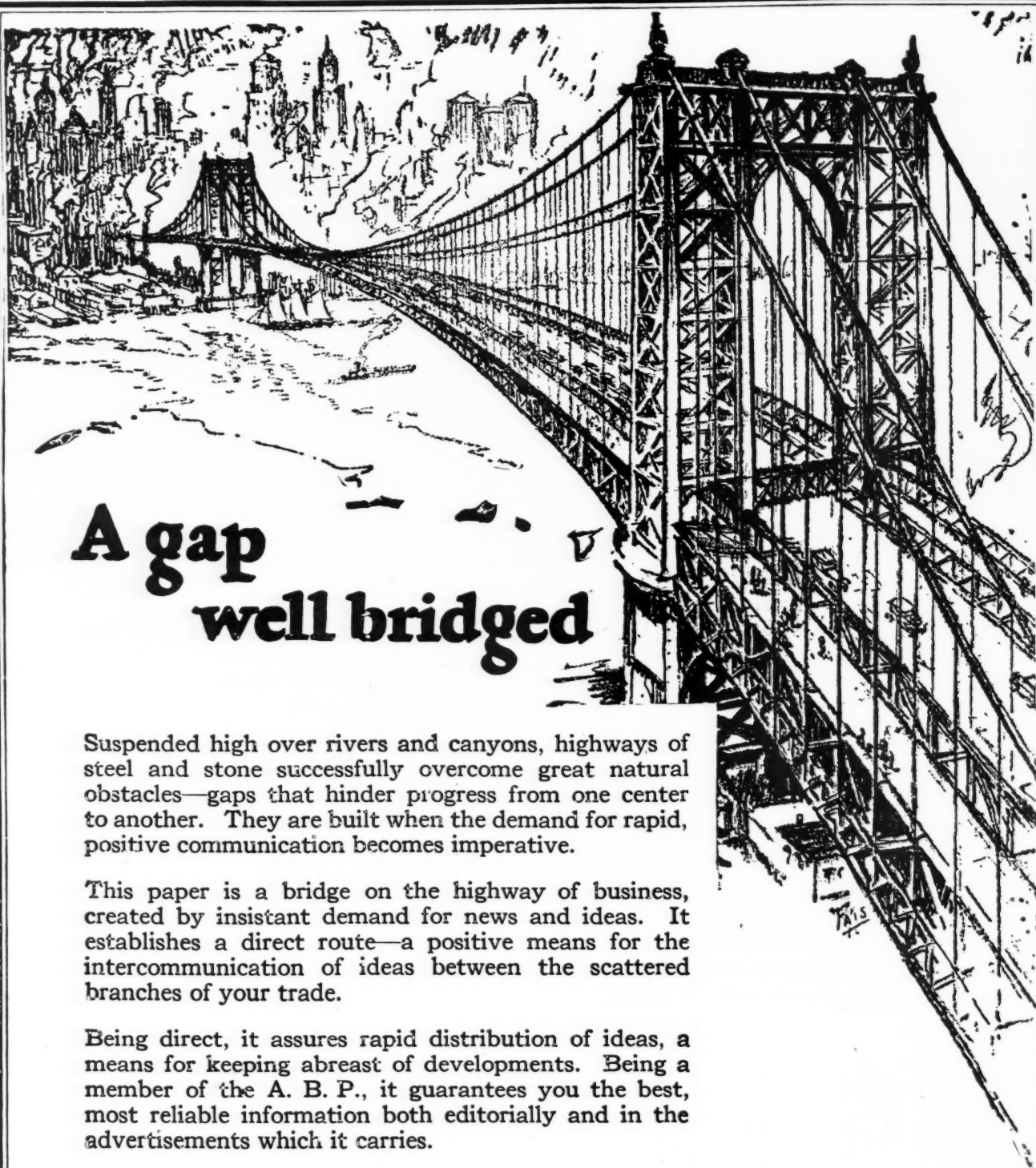
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Mail coupon to nearest Vesta Central or  
VESTA BATTERY CORP., 2100 Indiana Ave., Chicago, Ill.  
Please have your Central Distributor near me present the Vesta  
☐ Radio Line ☐ Auto Battery Line

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Address .....

City ..... State ..... M. A. 10-21-26



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Suspended high over rivers and canyons, highways of steel and stone successfully overcome great natural obstacles—gaps that hinder progress from one center to another. They are built when the demand for rapid, positive communication becomes imperative.

This paper is a bridge on the highway of business, created by insistant demand for news and ideas. It establishes a direct route—a positive means for the intercommunication of ideas between the scattered branches of your trade.

Being direct, it assures rapid distribution of ideas, a means for keeping abreast of developments. Being a member of the A. B. P., it guarantees you the best, most reliable information both editorially and in the advertisements which it carries.

Take the shortest and best route to up-to-the-minute news. This A. B. P. paper leaves no gap in supplying information which is helpful to you in the conduct of your business.

**THE ASSOCIATED BUSINESS PAPERS, Inc.**  
Executive Offices: 220 West 42nd St., New York, N. Y.

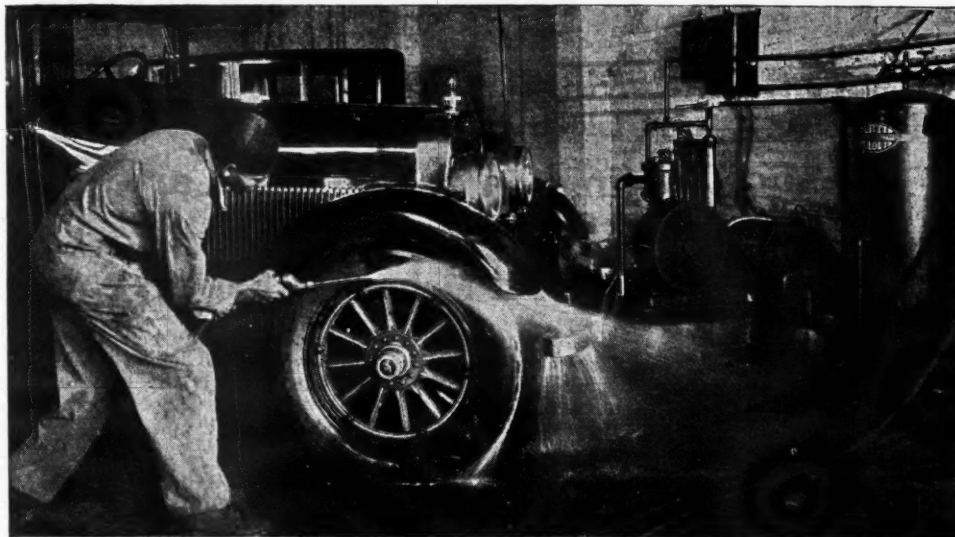
# A. B. P.

*An association of none but qualified publications reaching the principal fields of trade and industry.*

*MOTOR AGE is a member of The A. B. P.*



## CURTIS COMPRESSORS, HOISTS, CRANES, CAR WASH SYSTEMS, PORTABLE COMPRESSOR UNITS



## Profits from Valuable Floor Space!

How many square feet of your floor space do you use for car washing? In the same or less space, one man with a Curtis AIR-MIST System can wash many times the number of cars per day that he could by hand.

The Curtis AIR-MIST System turns out a better job! A penetrating mist softens the caked mud, flushes out inaccessible crevices, and flows the dirt off almost as easily as you would hose off the floor.

That is because the air and water are correctly mixed! The water amplifier assures the correct volume and pressure of water, regardless of existing water conditions.

The Curtis AIR-MIST System is a *complete* cleaning service. It provides air for tire inflation; dries out inaccessible places where rust would gather; cleans motors with engine cleaning liquid; applies soap solution vapor, polish, or penetrating oil; sprays paint; blows dirt from interior of car; vacuum cleans upholstery; etc., etc.

Why not offer your trade a *complete* cleaning service for the inside and the outside of the car, at a greater profit to yourself than by any other method?

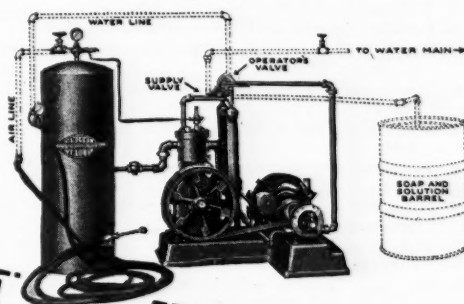


### The World Rides on Curtis Air!

The AIR-MIST System is built and guaranteed by the makers of the famous Curtis Compressor, which is more widely used for tire inflation throughout the world than any other compressor. Most of the nearly 25 million car owners in Europe, Asia, Africa, Australia and the Americas "ride on Curtis air."

Likewise, compressed air for rock drilling, pavement breaking, materials handling, paint spraying and scores of other uses in factory and field is supplied by Curtis Compressors.

The Curtis Pneumatic Machinery Company is 73 years old, and for 30 years has specialized on pneumatic engineering and high grade compressor manufacturing. Wherever compressed air will do the job better, Curtis can help you.



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Please send me, without obligation your new free "AIR MIST" catalogue.

Name .....

Address .....



# CURTIS AIR-MIST CAR-WASH SYSTEM with Westco water amplifier

CURTIS PNEUMATIC MACHINERY COMPANY, ST. LOUIS, U.S.A.

# BILL FIXIT—Broadcasting

(From Station A. H. P.—)

Trouble Shooting Kinks Which Have  
Made Motor Age an Electrical Authority

## "Electrical Trouble Shooting on the Motor Car"

By A. H. Packer, Associate Editor of Motor Age



### What Motor Age Readers Say

I found your book all you claimed it to be. I am an experienced mechanic and have several books on Automobile Electrical Systems but yours is the best one I have.

Estyl Colville, Square Deal Garage, Union Star, Mo.

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Wants another for one of his employees  
(The first copy must have satisfied)

I am enclosing a check for another one of your books, "Electrical Trouble Shooting on the Motor Car."

Welch Electric Co., Chicago, Ill.

Sold on a 5 day trial money back basis

### Four Trouble Shooting Charts Cover Starter, Generator and Ignition Work

#### TABLE OF CONTENTS

##### Chapter

1. What the wiring does and how.
2. Conductors, insulators and series circuits.
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38. Rewinding armatures and field coils.
39. Focusing headlamps.
40. Business management, flat rates and the right electrical testing equipment.
41. The electrical test bench.

A. H. Packer, 8117 Harper Ave., Chicago

Dear Sir:

I want to place my order for one of those books, "Electrical Trouble Shooting on the Motor Car," with the understanding that I am to pay the postman four dollars plus the postage when it arrives. I also understand that I can return it within five days if for any reason I do not wish to keep it, and that you will return to me the money I spent, including the postage.

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Over 300 illustrations. Nearly 500 pages, 600 questions and answers. Size 5½ by 8 in. Thoroughly indexed. Flexible binding to stand hard usage in the shop.

A book needed by the shop foreman, the electrician, the mechanic, the service salesman, the carburetor man and all men connected with automotive service work.

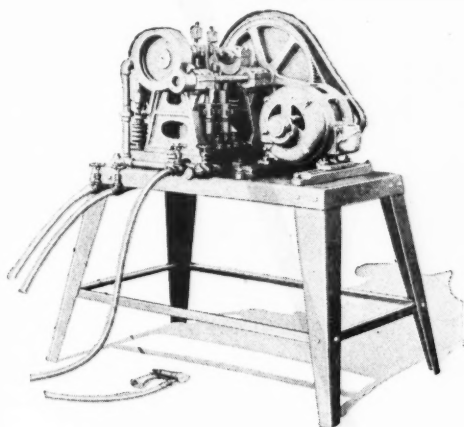
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## Why the Hardie Is Trouble-Free

Self lubrication.  
Silent chain drive.  
No enclosed parts.  
New pistol grip gun.  
Improved plungers.  
Die-cast removable bearings.  
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Amplifies city water pressure eight times. Powerful stream removes caked mud, grease, etc., from chassis in a jiffy. Slight pressure on gun control gives soft, velvety spray that will not injure finest finish. Easy to install. Easy to operate. Simple, compact, trouble-free construction. Uses hot or cold water, soap solution or other cleaning liquids can be used. Pays for itself in 4 to 6 weeks.

**DEPENDABLE  
HARDIE  
CAR WASHER**



CAR washing is today's big item in the service field. No longer is the car owner willing to wait half a day to have his car washed. The old-style, out-of-date "hose and sponge" method won't do any more. Service station and garage owners who stick to the old way are neglecting their biggest opportunity.

With a dependable Hardie High Pressure Car Washer you can give the public exactly what it wants—a quicker job of washing, a better job of washing. And it will be a more profitable job of washing to you. Users everywhere will tell you that they have more business and make more profit per car than they ever before dreamed of.

Dependable Hardie car washers are sturdily and ruggedly built in 4 sizes — one-car to 6-car—to meet your exact needs. There are no enclosed parts. The self oiling system does not permit the cleaning solution or water to mingle with the oil. Write for a descriptive catalog and detailed specifications; it may be the means of starting you on the road to real additional profits. Write now, before you forget.

For Sale By Leading Jobbers Everywhere

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Canadian Factory  
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# "Ask your jobber"

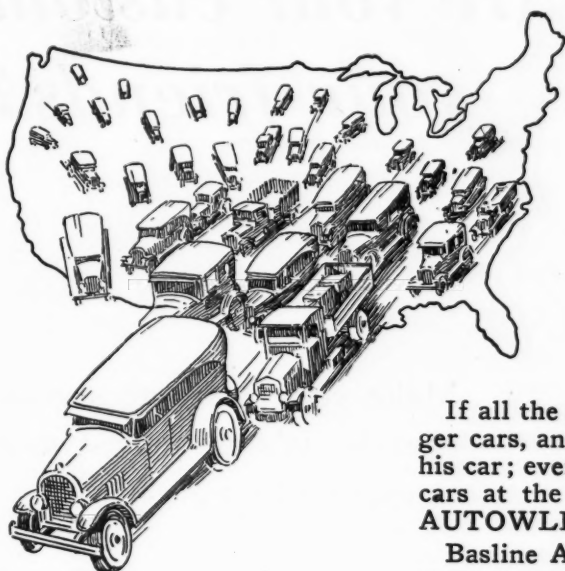
You will frequently find that following the suggestion of manufacturers to "Ask Your Jobber" will result in profit-paying additions to your stock.

A closer inspection of advertised goods and the opinion of your jobber on their salability, will often strengthen your judgment and bring more patronage and money into your place of business.

Ask your jobber. He knows.

MOTOR AGE

5 S. WABASH AVE.  
CHICAGO . . . ILLINOIS



# Here's Your Market for BASLINE AUTOWLINE

If all the motor cars in the United States were seven-passenger cars, and each driver would crowd an extra passenger into his car; every man, woman, and child would be riding in motor cars at the same time. There's your market for BASLINE AUTOWLINE—some market, eh?

Basline Autowline is a motoring necessity—it's absolute insurance against delay—it's a real emergency tool. Basline Autowline is—the original wire rope towline—the only nationally advertised towline—the only towline with patented Snap Hooks that cannot loosen. Above all, it is the towline of exceptional strength.

Basline Autowline pays Jobbers and Dealers a good profit, too. Write for Price List and descriptive literature.

**BRODERICK & BASCOM ROPE CO., St. Louis**

Eastern Office and Warehouse: 76 Warren St., New York City



J 341

## The Hunting Season Is On

REPEAT  
SALE



No. M7, Oblong  
1 3/8 x 2 1/4 in. Packed  
12 in can, one dozen  
cans in carton.

REPEAT  
SALE



No. M6, Round 1 3/4 in.  
dia. Packed 12 in can,  
one dozen cans in carton.

### A Selling Suggestion

A pair of good boots cost more than a set of Ford tubes. A punctured boot spoils the day. The 5-Minute Vulcanizer is as good for boots as it is for tube punctures.

You know the hunters in your town. Put them wise to this tip. It will help you sell vulcanizers and create the repeat business in Patch-&-Heat Units as well.



**C. A. SHALER COMPANY, Main Office and Factory, WAUPUN, WIS., U. S. A.**

## GF Allsteel

The Complete Line of Office Equipment

### Allsteel Files

**D**RAWERS that operate at a touch, with velvet smoothness—greater filing capacity per unit—unusual fire protection—and *no wearing out*. All these are *Allsteel* File advantages.

Welded construction throughout, beautifully and richly finished in baked-on enamel, *Allsteel* Files—like the entire *Allsteel* Office Equipment line—guarantee you *permanent* satisfaction, at a reasonable cost.

Write for the new GF Allsteel Furniture Catalog.

**THE GENERAL FIREPROOFING CO.**  
Youngstown, Ohio

Dealers Everywhere • Canadian Plant: Toronto, Ontario



Attach this coupon to your firm letterhead

MA

The General Fireproofing Co., Youngstown, Ohio

Please send me without obligation a copy of your Allsteel Furniture Catalog.

Name.....

Firm.....

Street No.....

City.....

State.....

## Are your customers your friends?

Make your customers your friends. It's the easiest way to make a living.

A smile, a polite "Good morning," a small service that costs you nothing but a moment's time — dozens of things in the course of a day will make your customers like you.

That is your best fortification against competition. It is often better than price. It is frequently better than anything except quality, or a more sincere brand of courtesy.

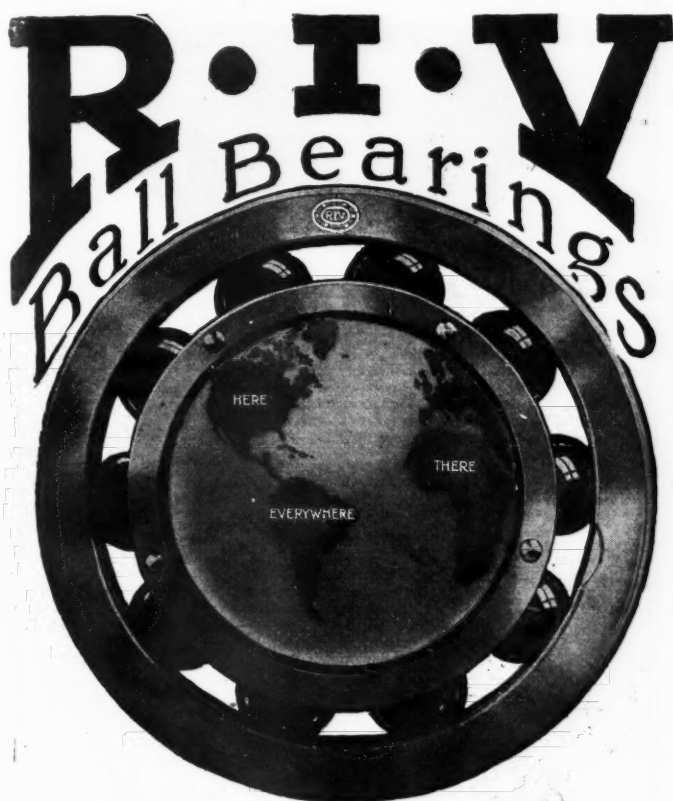
Make your customers your friends—and they will keep themselves your customers.

## MOTOR AGE

5 South Wabash Avenue

CHICAGO . . . ILL.





## A New Proposition for Automotive Dealers

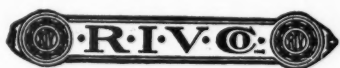
A knowledge of the automotive jobber's needs in selling replacement parts, particularly ball bearings, has enabled us to devise a sales plan on ball bearings which is unique in that it is based upon information and common sense.

It contains:

1. A bigger profit per sale.
2. A positive insurance against loss.
3. The profitable outlets for ball bearings.
4. Lists of the best buyers.
5. Sound and workable sales suggestions.
6. A product of exquisite quality.

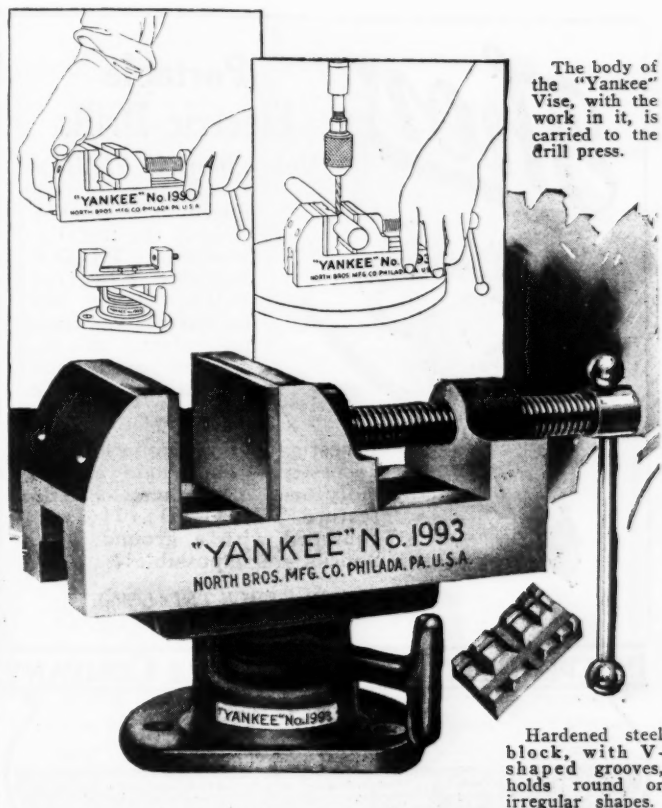
This proposition has been characterized by the biggest automotive jobber in America as "The most intelligent cooperation yet offered."

*Good jobbers can have the details if they ask for them NOW.*



Fisk Building  
57th Street at Broadway  
New York City

Branches: Boston, Detroit, Montreal and San Francisco



## This means accuracy and faster work

You buy and use "Yankee" Tools because they are different—and will work in ways and places in which no other tools will work.

The "Yankee" Vise is detachable from its base.

Sides, end, top and bottom, and the sliding jaw, are accurately machined to hold work square—with vise flat, on sides, or on end.

For many operations the "Yankee" Vise can be used as a jig. From machine to machine it goes—the work kept in original alignment. You can set the size most convenient for your work.

No. 1994—Jaws open 4 in.

No. 1993—Jaws open 3 3/8 in.

No. 1992—Jaws open 1 15/16 in.

No. 1991—Jaws open 1 1/2 in.

The "Yankee" Vise has swivel base. Cam-throw lever locks vise in any position.

### Some Other "Yankee" Tools

Brake Lining Cutter	Automatic Feed Chain
Ratchet Breast and Hand	Drills
Drills	Ratchet Screw-drivers
Automatic Feed Bench	Ratchet Tap Wrenches
Drills	

### FREE New "YANKEE" Tool Book

This interesting little book is for all lovers of fine tools. It tells just what you want to know about all the famous "Yankee" Tools. Write for your copy today.

Dealers Everywhere Sell "Yankee" Tools

"Yankee" on the tool you buy means the utmost in quality, efficiency and durability



NORTH BROS. MFG. Co., Philadelphia, U. S. A.

# "YANKEE" TOOLS

*Make Better mechanics*



## No More Overheating of Fords

with the  
G. B. Impeller

This scientifically designed 24 blade fan gives your car that fine smooth running during the day which you have heretofore experienced perhaps only at night. The G. B. IMPELLER increases efficiency, prolongs life of your motor, saves gas and repair bills.

A Ford equipped with a G. B. IMPELLER simply cannot overheat, no matter how much or how hard you run it.

Surpasses by far in performance the water pump combined with the regular fan and eliminates the need of one. 24 blades! Producing tremendous airflow with static pressure. The G. B.

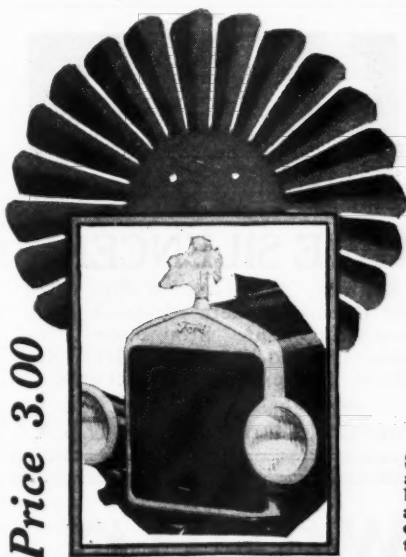
IMPELLER consumes no additional power, puts no extra stress on the fan belt. Nothing to get out of order. Installed in 5 minutes. For winter use and milder cooling, reverse the Impeller, i.e. turn the other side towards the radiator.

Regular discounts to trade.

10 days trial, money refunded if performance found unsatisfactory.

Agents wanted

DE BOTHEZAT IMPELLER CO. INC.,  
1922 Park Avenue, N. Y. C.



Price 3.00

10  
Days  
Trial

**G.B. IMPELLER**



**\$935**

Net Price

No. 28—Interchangeable Hex Nut Service Set. Complete in handy steel case.

## A HEX NUT SET FOR SERVICING ALL CARS

THIS compact little outfit instantly provides the right socket for any nut on any make of car. Has all the popular handles and special attachments for getting into cramped quarters.

Set consists of twenty-one parts, including ten Hex sockets from 7/16 to 7/8. Sockets are of CHROME NICKEL Steel, electrically heat treated and hardened to withstand everyday service without breaking down. All at a price so reasonable that no fleet owner can afford to be without them.



**SPEED UP TOOLS**

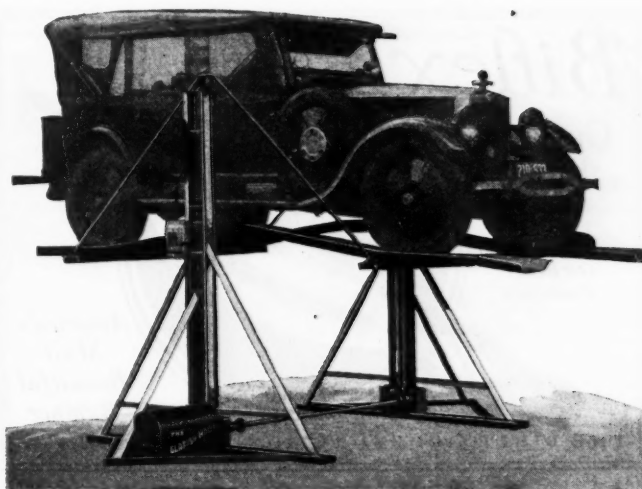
Write today for Catalog No. 50 describing complete line of Socket Wrenches

Stevens-Walden-Worcester, Inc.

Manufacturers of Stevens "Speed-Up" tools and Walden-Worcester Wrenches.

WORCESTER, MASS.

**STEVENS-WALDEN-WORCESTER**  
INCORPORATED



5 foot Lift in 2 minutes

## The Gladish Hoist

This is the most efficient hoist ever manufactured. No installing expense. No pits to dig and concrete. No expensive runways to build. No center braces or supports to hinder the operator. Absolutely safe. A child can operate it.

Note: Let us give you complete information on this hoist. There is no obligation on your part.

The American Hoist Corp.  
Chattanooga, Tenn.

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Standard equipment on over 40% of all cars.

Only one size repacks all automotive pumps. Metallic face keeps rods from scoring, pumps from leaking. Saves non-freezing mixtures. Makes a packing job worth more.

## Crane Packing Company

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109 Broad Street,  
New York

Gentlemen:

Send.....spools, Style 112, garage size (40 ft., 3/8 in.)  
C. O. D. \$2.50 Net.

Name.....

Address.....



## Biflex

Cushion  
Bumper

To Save  
Your Life  
You Can't  
Get Better  
Protection



The New  
Superb

America's  
Most  
Beautiful  
Bumper

THE BIFLEX CORPORATION, Waukegan, Illinois



## B. C. A. Preference

B. C. A. Angular Contact Radial Bearings are preferred by outstanding automobile makers because they are the most satisfactory solution to differential and clutch bearing problems.

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Lancaster, Penna.      Detroit Office  
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TRADE MARK

**Satisfies the Demand for a New Sound in  
Warning Signals**

Car owners want new sounding warning signals. Thousands of them are adding an extra one besides the regular standard equipment.

TOOT SWEET is a leader among beautiful sounding signals. Its 4 tones make it musical, but it is clear and commanding as well. Operates from the exhaust, without cost to owners. Liberal profits are available on sale and installation of TOOT SWEET. Ask us for complete details.

**ILLINOIS BRASS MFG. CO.**  
Chicago, Illinois

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accounts for every labor minute



Learn the interesting details from our descriptive data.

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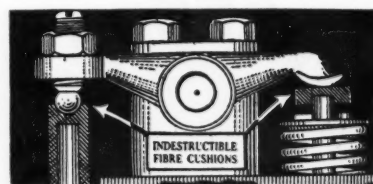
Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic—except for winding. Every machine guaranteed.

**Follett Time Recording Co., 217 High Street, Newark, N. J.**  
"Established Since 1904"

16

Noisy  
Points  
of  
Contact  
in Rocker  
Arms



Quieted with

## DUNN VALVE SILENCERS

For all Chevrolet Engines. Consist of 8 fibre discs for valve stems and 8 fibre sockets for push rods. Allow perfect valve adjustment. Stop noise. Installed in a few minutes. Sold by most dealers. Set packed in carton \$2.50. Liberal trade discounts.

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**Dunn Manufacturing Co., Clarinda, Iowa, U.S.A.**

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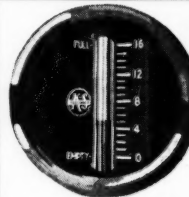
Write for Special Book—Garage Front  
**THE KAWNEER CO., 8734 Front St., Niles, Mich.**

## ZENITH

CARBURETOR

More  
Power  
Less  
Fuel

**Zenith - Detroit Corporation, Detroit, Mich**



**The K-S GASOLINE**  
**Telegage**

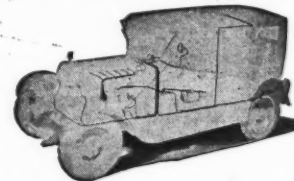


A gasoline gauge on the Dash. Note our half page advertisement in this week's issue Saturday Evening Post. Write for description and proposition to the trade.

**KING-SEELEY CORPORATION**  
298 Second Street      Ann Arbor, Mich.  
Chicago Branch, 2450 Michigan Boulevard

## Packard Cable

The Packard Electric Co.  
Warren, Ohio



## SPEED-DEE CLEANS UP for Dealers

Results in quick stock turn-over, with small investment and liberal profits. Without water it removes grease, stains, etc., from hands, cloths, upholstery, paint or enamel. Indispensable in shops, service stations and car kits. List 25c.

Write for discount details.

**States Chemical Company**  
703 W. Fulton St.      Chicago, Ill.



Let us  
send our  
profit-  
boosting  
plan.  
It's Free.



## Our SAMPLE CASE



In my Sample Case I carry only representative products and call upon a big majority of the really worth-while retailers who are logical outlets for your merchandise.

I cover the whole territory once a week. Not only do I get favorable attention from the owner of each establishment, but the salesmen and the service men—even to the lads at the gasoline pumps—get my story.

If you are a manufacturer with desire for good representation to dealers just ask MOTOR AGE to write you about the small cost of the service I am prepared to render you.

Sam P. Case  
Care of MOTOR AGE, 5 S. Wabash Ave., Chicago



### Rainbow No Glare Mirror

*Eliminates All Glare*

The RAINBOW Mirror sells fast because it provides relief from the one outstanding weakness of ordinary mirrors. Furnished in

Amber, Blue and Black—it eliminates all glare for day or night service. 2 3/4"x7" beveled edge, fully adjustable bracket, nickel plated. Packed in attractive display carton with mirror samples attached.

*Liberal discounts to dealers. Write*

Monarch Tool & Machinery Co.  
524 S. Clinton St. Chicago, Ill.

### Mr. Manufacturer

**Y**OU are invited to have this Sample Case Salesman present your proposition to the leading Automotive Merchants. This Salesman has effective contact with nearly 25,000 prospects.

Drop us a line and we will tell you all about this economical plan.

**SAMPLE CASE SALESMAN**

**MOTOR AGE**

5 S. Wabash Ave., Chicago, Ill.

Send Them to Carty!



#### REWOUND ARMATURES EXCHANGED

All armatures strictly hand-wound, guaranteed equal to new. Shipped same day order is received.

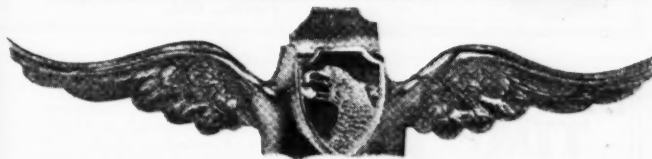
Ford Generator and Starter .....	\$1.50	Large Double Unit Generator .....	4.00
Small Double Unit Generator .....	3.25	Double Unit Starter .....	4.00
		Motor Generator .....	8.00

(Delco, Northeast, Dyneto)

#### Carty Armature Service

1608 Fourteenth St., N. W.  
WASHINGTON, D. C.  
Largest Exchange Rewound Stock South of New York

#### "ONE" OF OUR MANY WINNERS



#### THE "EAGLE"

We Want Specialty Jobbers to Handle Our Line. You Will Be Surprised at the Arrangements—Discounts—Quality.

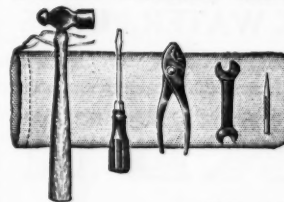
Warehouse  
Stocks  
New York  
Chicago  
San Francisco

#### GOLDEN GATE BRASS Manufacturing Company, Inc.

251-259 Second St.  
San Francisco, Cal.

Adjustable  
Closed Car Wings  
Step Plates  
Radiator  
Lock-Caps  
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Extensions

#### THIS TOOL KIT HELPS TO MOVE THOSE USED CARS



1 Screw Driver, 4" Blade.  
1 Ball Pein Hammer.  
1 6" Pliers.  
1 No. 25 double end wrench.  
1 Punch.  
Complete in draw-string bag. No. 156.

Price 75c \$8.40 doz.

*If your jobber can't supply you, write direct.*

**CHICAGO TOOL & KIT MFG. CO.**  
156 Whiting St., Chicago



A quality product which saves the repairman time and trouble.

**VELLUMOID**  
THE REAL  
REPLACEMENT GASKET MATERIAL  
M'd by The Vellumoid Co., Boston, Mass.





## Here Is Something to Sell!

A piston ring, on the principle of a packing ring, that gives remarkable results in service, is used in thousands by automobile factory branches for replacement—and pays a profit worth while. WRITE FOR DETAILS.

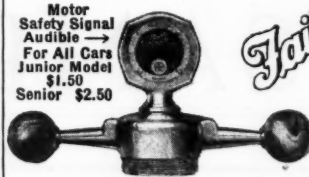
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Motor  
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For All Cars  
Junior Model  
\$1.50  
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**Locking Cap  
For All Cars**

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Accurately cut, they keep timing accurate

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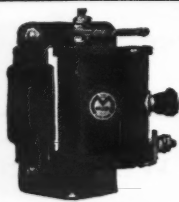
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FOR CHEVROLETS AND PONTIACS

One turn of ignition key locks BOTH ignition  
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Has two primary windings instead of one. Gives a hotter spark, makes easier starting, gives more power, quicker pickup and more mileage. Try it on a sluggish motor. Write for full particulars.

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Let the package they come in display them. By making them easy to buy, you automatically make them easy to sell. Dealers like the WESCO carton. Write.

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**SAVES  
TIME**



Tests Compression  
Locates all knocks,  
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Locates Piston Slaps  
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The Blackhawk "Chief" and "Scout" water pumps for Fords are real profit producers. Ask your jobber about them. They sell at \$7.50 and \$5.00 complete with belt and horn bracket.

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Gas Gauge for  
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Sells Quick at \$1.25 Retail.  
Types "K" and "J" for 1926  
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20c Ea. (Retail)

Write for  
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Always Insist Upon  
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Most good  
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AIR COMPRESSORS  
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Write for the Book  
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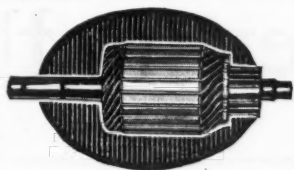
describing many new uses for compressed air. Shows how to make an air compressor earn greater profits.

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**HALL HONE** \$35.  
at your  
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New Rewind Profits—See announcement every 4th week. Write now for price list. The H. M. Fredericks Co., Lock Haven, Pa.

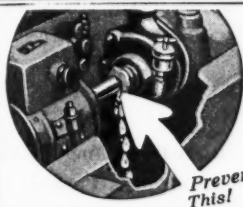
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Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any size or shape. It is a repair for the worn shaft and loose bushing. At your jobbers; if not write us.

1 lb. can.....\$1.75 per pound

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The Original  
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Built by the oldest makers of Portable Electric Drills in the World.

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Works Like Magic

It goes in anywhere, grips the cotter pin—snaps it out in a jiffy—holds it until released. You don't have to pull or twist. Just squeeze the handles. It's a great tool!

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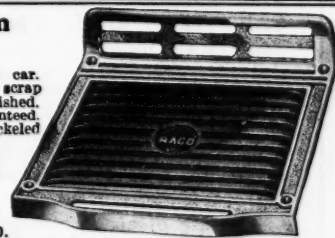
WEED Levelizers interest dealers because they are easily attached and require no service.

Made by the makers of WEED CHAINS & WEED BUMPERS

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They sell fast as they improve any car. Made of number one virgin metal. No scrap nor remelt metal used. Beautifully polished. Material and workmanship fully guaranteed. High quality black rubber mat and nickel-plated screws or stove bolts furnished with each plate. Many styles and sizes. Write your jobber today for price lists and discounts.

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Hydraulic Compressed  
Brake Lining

FROM THICK  
TO THIN  
DOWN TO THE  
LAST PLY  
IT HOLDS

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FOR SALE—Fast Frontenac racing car. Fine condition, ready to race. Would consider an auto in trade. H. Kohlert, St. Charles, Ill.

To locate business opportunities  
To sell, rent, exchange or buy  
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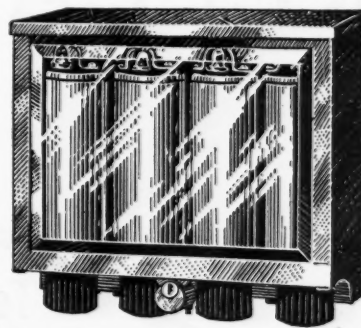
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WILL HELP YOU



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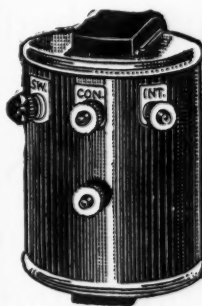
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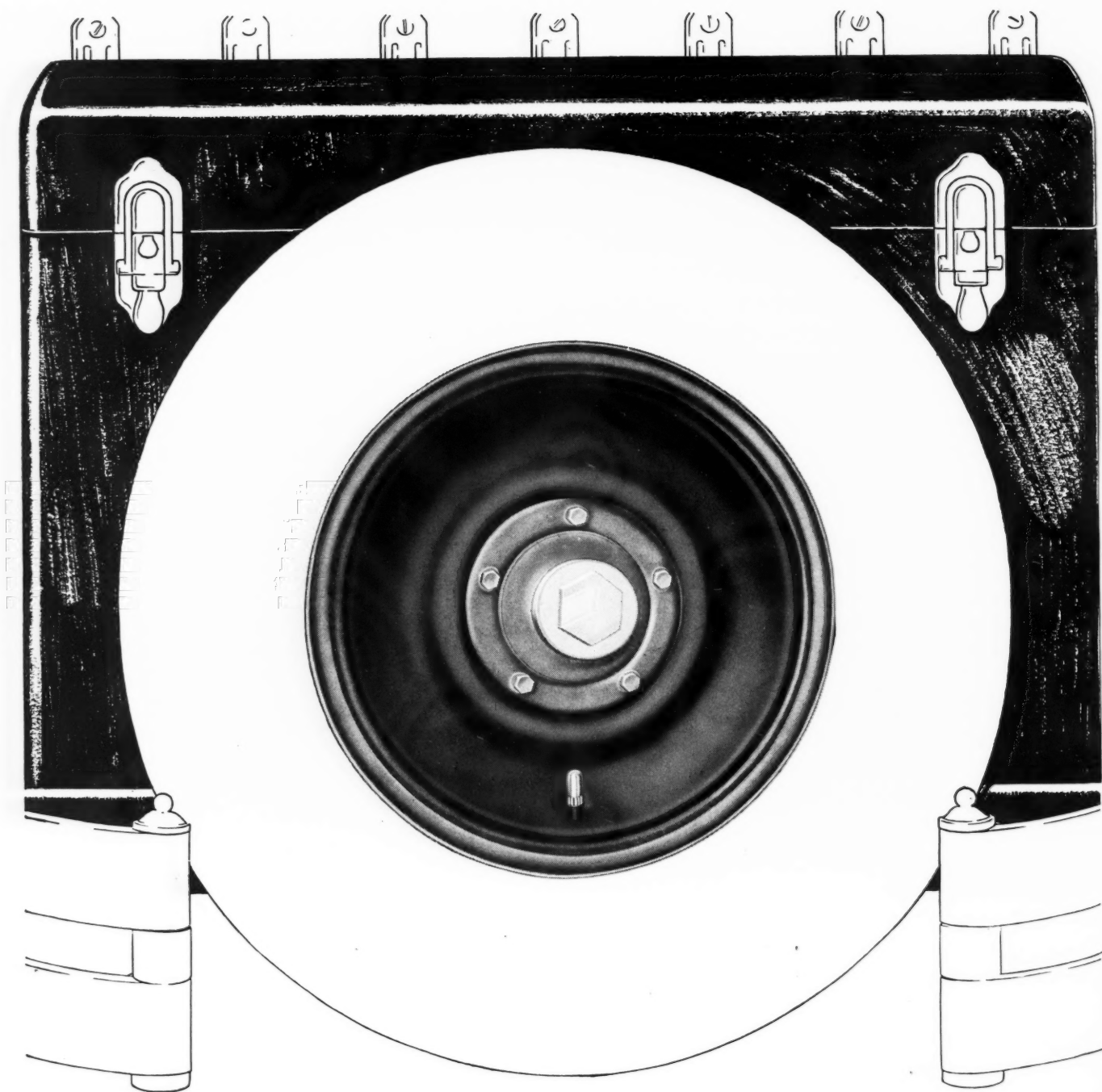
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